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The Relationships between Violence in Childhood and Educational Outcomes: A Global Systematic Review and Meta-Analysis

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Abstract

This is the first study to estimate the association globally between violence in childhood on educational outcomes, addressing a significant gap in the current evidence base. Systematic reviews and meta-analyses were conducted to identify 67 and 43 studies respectively from 21 countries to estimate the relationship between different types of violence in childhood on educational outcomes including school dropout/graduation, school absence, academic achievement and other educational outcomes such as grade retention, learning outcomes and remedial classes. Findings show that all forms of violence in childhood have a significant impact on educational outcomes. Children who have experienced any form of violence in childhood have a 13% predicted probability that they will not graduate from school. Males who are bullied are nearly three times more likely to be absent from school and girls who have experienced sexual violence have a three-fold increased risk of being absent, AOR 2.912, 95% CI (0.904-4.92) and AOR 3.147, 95% CI (0.033-4.57) respectively. Violence in childhood also has a significant impact on children's academic achievement on standardized tests. This study shows how different forms of violence in childhood contribute to inequalities in education—for both boys and girls and that an increased investment in prevention is needed in order to meet the global sustainable development goals of ending violence, raising learning outcomes and creating safe, non-violence and inclusive learning environments. More work is also needed to further define, monitor and measure the link between violence in childhood and educational outcomes in order to achieve the Sustainable Development Goals.

Keywords: Child maltreatment; Violence against children; Educational outcomes; consequences; learning outcomes; systematic review; meta-analysis

Introduction

Addressing violence in childhood is a key development challenge for many countries and a major focus for international development since the adoption of the United Nations Sustainable Development Goals (SDGs) which include targets specifically aimed at eliminating, reducing and preventing violence everywhere. While violence in childhood has been shown to impact the health and well-being of children in every country where it has been measured, there is less evidence of the impact of violence on educational outcomes (Gilbert et al., 2009; Fry, 2016; Fang et al., 2015) despite the realization that education goals cannot be met when children live in fear (UNESCO, 2017; UN Secretary General, 2016). This study assesses the impact of a wide range of types of violence in childhood on educational outcomes through a global systematic review and meta-analyses. As the first study to do so, it aims to fill a gap in existing knowledge about this relationship and identify key issues for future research. The study is part of a larger program of research intended to support the achievement of SDG education Target 4.a which calls for the provision of *safe, non-violent, inclusive and effective learning environments for all*.

The past ten to fifteen years have seen substantial improvement in the analysis of both the prevalence and consequences of violence in childhood as demonstrated by a number of reviews and meta-analyses looking at this field of study which include both a global (see Barth, Bermetz, Heim, Trelle & Tonia, 2013; Hillis, Mercy, Amobi & Kress, 2016; Pereda, Guilera, Forns & Gómez-Benito, 2009; Stoltenborgh, van IJzendoorn, Euser & Bakermans-Kranenburg, 2011) and regional perspective (see Fry, McCoy & Swales, 2012; UNICEF, 2012). Furthermore, there have been systematic reviews and meta-analyses exploring individual countries where enough empirical literature exists (see Ji, Finkelhor, & Dunne, M. 2013; Fang et al., 2015). However, fewer literature reviews and meta-analyses focus on educational outcomes. Those that do typically examine variables such as enrolment, attendance and learning outcomes as measured by test scores (Cuesta, Glewwe & Krause, 2016; Snilstveit et al., 2015; Glewwe et al., 2011; Mitchell, Wylie & Carr, 2008). Measuring learning and other educational outcomes such as enrolment is important because enrolment does not ensure attendance and attending school does not necessarily mean children will learn (Rose & Alcott, 2015). Nevertheless, the measurement of learning outcomes has become an important focus of policy and programming efforts – including the SDGs – as a means of ensuring equitable and inclusive education for all (SDG 4), reducing poverty (SDG 1), and improving life skills (a focus area for many goals). Though there have been improvements in defining and measuring educational outcomes, including learning, there is a clear need to better understand how violence impacts children's educational outcomes.

Although no systematic review has yet examined the myriad forms of violence in childhood and their impact on educational outcomes, there have been both literature reviews and meta-analyses conducted on some specific violence types and academic outcomes. For example, a literature review by Espelage et al. (2013) concluded that bullying and peer victimization are related to poor academic performance in college. Another review examining violence and aggression in urban minority youth in the United States concluded that violence

adversely affects academic achievement by negatively impacting cognition, school connectedness and school attendance (Basch, 2011). A further recent review exploring the relationship between violence in childhood and educational outcomes which utilized 20 articles, of which sixteen were empirical and four were research syntheses, concluded that violence in childhood frequently impairs academic performance resulting in special education requirements, grade retention and lower grades (Romano, Babchishin, Marquis & Fréchette, 2015). A recent report by UNESCO (2017) has also shown that school violence and bullying victimization impacts children's education in a number of ways, such as being afraid to go to school, difficulties concentrating in class and poorer performance in subjects, particularly mathematics. Nakamoto and Schwartz (2010) conducted a meta-analytic review of 33 studies that explored the association between peer victimization and academic performance. This systematic approach reported a small but significant negative correlation between peer victimization and academic performance using random effects and fixed-effects models (Nakamoto & Schwartz, 2010). Clearly these reviews offer important insights about the impact of violence on academic and other educational outcomes but equally there has been a lack of systematic attempts to explore these associations.

This paper is the first to comprehensively explore the impact of violence in childhood on various educational outcomes including learning. A global systematic review was conducted and meta-analyses estimating the impact of violence on educational outcomes were developed. The meta-analyses calculated the magnitude of associations with school dropout, absenteeism, academic achievement, grade repetition, engagement and other outcomes, and thereby estimated (at least to the lower bound) the educational burden, separately for seven major types of violence in childhood: physical, sexual, emotional, and community violence as well as bullying, neglect, and witnessing parental violence.

Methods

Systematic Review of the Impact of Violence in Childhood on Educational Outcomes

A systematic review was conducted to identify studies reporting on the consequences of violence in childhood on educational outcomes. The term 'violence in childhood' is used to cover violence against children, violence by children towards others (such as bullying) and violence to which children are exposed (such as witnessing parental violence). Definitions of different types of violence used in the study are presented in Table 1. Educational outcomes are those specified in the studies included in the review. These include measures of school performance including academic performance and test scores; student engagement; and attendance, truancy, absenteeism suspension and expulsion (see Table 2).

We searched PubMed, Embase, PsycInfo, CINAHL-EBSCO, ERIC and SocINDEX for papers published from the start of January 2000 to the end of November 2016 utilizing both free text and controlled vocabulary of subject heading and keyword terms consisting of population (children), type of violence and type of educational outcome [systematic review protocol with full list of search strings is available from the authors]. Languages were restricted to English and the geographic scope was global. Two reviewers identified and screened potentially relevant articles and independently assessed each study against the inclusion criteria. To identify additional relevant studies, we also hand searched several

journals including *Child Abuse and Neglect*, *Child Maltreatment*, *Child Abuse Review*, *Journal of Interpersonal Violence*, *International Journal of Educational Development* and *Developmental Psychology*.

Based on the methods of previous reviews, studies were included if they were: primary research that explored the relationship between at least one form of violence in childhood (occurring before the age of 18), regardless of the setting (home, school, community, institution) where the violence occurred including: (1) sexual violence (including unwanted touching, forced sex, attempted unwanted sex, sexual harassment or pressurised/coerced sex), (2) emotional violence (including verbal abuse, psychological abuse), (3) physical violence (including corporal punishment, violent discipline, and physically abusive behaviors), (4) bullying (including physical or verbal bullying), (5) adolescent relationship violence (including dating violence in all forms: physical, verbal, sexual and coercive behaviors), (6) witnessing domestic violence, (7) witnessing community violence, and/or (8) gang violence and its impact on educational outcomes to include at least one quantifiable main outcome measure of (a) school enrolment, (b) attendance including school absence, (c) school dropout, (d) progression including failing courses, and/or (e) learning (including basic literacy and numeracy skills, the development of other important capabilities such as critical thinking and problem-solving and knowledge that promotes well-being).

Based on previous studies which have measured the burden of violence on education and other outcomes such as health and well-being (Fang et al., 2015; Fang et al., 2016), included studies needed to present the calculation of odds ratios (ORs), relative risks (RRs) or marginal effects (MEs) disaggregated by the type of violence, or reported results from regression analyses which could be used to calculate MEs (e.g. those which included continuous outcome variables such as scores or indexes). Studies which sampled on the basis of the presence of any specified outcome were not included – since this would invalidate the calculation of an OR, RR or ME for that outcome (Andrews et al., 2004). Both ORs and RRs refer to the ratio of the odds of an event occurring in an exposed group versus an unexposed group – in the case of this review it being those who have experienced a specific type of violence and those who have not (Fry, 2014). The odds ratio can be calculated in non-random samples, whereas the relative risk is calculated from population-level data. Marginal effects measure how much change in a continuous outcome variable – in this review, educational outcomes such as test scores – will be produced by a unit change in the predictor variable – in this case, violence (Cameron & Trivedi, 2010).

The abstract of each article of potential interest was screened to see if the article met our inclusion criteria. If so, full articles were retrieved and again reviewed to ensure the article met inclusion criteria. If insufficient information was presented in the abstract, full-texts were retrieved for further examination. For each included study, we examined the bibliographies to ensure all articles meeting the inclusion criteria were located. Key variables related to study design, location and findings were then extracted from the included studies. Figure 1 highlights the search and inclusion process. A total of 9,407 records were reviewed through the databases and an additional 88 through manual searching journals. The dataset from one study, the *Young Lives* study, was also identified as having relevant information that was not yet accessible through the search engines. Of these, 629 abstracts were further

reviewed to assess whether they met the inclusion criteria. Of these abstracts, 377 full-text articles were retrieved and reviewed. A total of 67 studies (representing 68 publications: 2 from the 1 *Young Lives* study) met the inclusion criteria. Of these, 14 were studies exploring sexual violence, 16 on physical violence, 36 on bullying, 6 on neglect, 10 on witnessing domestic violence, 6 on emotional violence, 2 on adolescent relationship violence, 5 on community violence and 10 on any form child maltreatment (e.g. those that did not disaggregate by type of violence) and their links with educational outcomes (see Table 2 for a full list and further details of included studies). The majority of studies explored multiple types of violence and multiple educational outcomes.

Meta-analyses to Estimate the Impact of Violence in Childhood on Educational Outcomes

Effect Sizes. Two types of effect size were used in the meta-analyses, adjusted odds ratios (AORs) and marginal effects (ME). Over half of studies identified through the systematic review reported ORs or AORs (36 studies). If only the ORs and not AORs, which adjust for confounders, were available for a study, we produced corresponding estimates of AORs using an adjustment factor calculated from studies that had both AORs and ORs. If both ORs and AORs were not available in any given study, the average of the adjustment factors was derived from other outcomes within the same general category of outcomes (e.g. academic achievement, dropout, etc). The adjustment factor was calculated by using the following formula:

$$U = \frac{OR_A}{OR_U}$$

Where OR_A represents the adjusted odds ratio and OR_U represents the unadjusted odds ratio, the U is the bias produced from failure to control for the confounders. Most studies that reported ORs or AORs had corresponding 95% confidence intervals (CIs). Those studies that did not report 95% CIs (for ORs or AORs) were excluded from our study (Study No.2, 12, 13, 14, 19, 26, 32, and 37) and an additional 3 studies (No.17, 21, and 28) only reported RRs, these 11 are studies were excluded.

Another 31 studies identified through the systematic review reported MEs and most of them were the marginal effect of different types of violence in childhood on standardized academic achievement. We also excluded the ME studies that did not report 95% CIs or a measure of standard error (such as t statistics) of coefficient estimates. Thirteen studies that did not report 95% CIs or standard errors were excluded, (Study no. 38, 40, 43, 44, 46, 47, 52, 53, 59, 60, 63, 65, 66).

Outcome and Violence Types. The educational outcomes were divided into four different outcome types based on the findings of the systematic review: (1) school dropout/graduation (including high school dropout/incompletion and school graduation /completion, the impact directions of the above two are opposite), (2) school absence, (3) academic achievement/performance (reporting both low and high academic achievement,

with the impact directions of the two also being opposite), and (4) other educational outcomes including grade retention/remedial class, etc.

Since limited studies were found related to the impact of community violence, gang violence, and adolescent relationship violence on educational outcomes that reported AORs or MEs in the systematic review, the types of violence in childhood were divided into 7 different violence types for the meta-analysis: (1) sexual violence, (2) physical violence, (3) emotional violence, (4) neglect, (5) witnessing parental violence, (6) bullying, and (7) other.

Meta-analyses strategy. Since several estimates provided under one outcome type and one corresponding violence type could exist in the same study (because of different control variables, different subtypes of the outcome types and violence types), we first calculated only one estimate for each study under one outcome type and one corresponding violence type. Two strategies were adopted to address this issue.

Double Meta-analyses. A two-step double meta-analysis was the first strategy adopted. First, for those studies that reported more than one estimate under one outcome type and one corresponding violence type, we conducted a meta-analysis for this study (under the outcome type and violence type) to obtain one estimate and its corresponding 95% CI. If the P value of the Q test was under 5%, then the estimates reported are from random effect results, otherwise they are from fixed effect results.

Secondly, we merged the data from step 1 and those studies that reported only one estimate under one outcome type and one corresponding violence type and did meta-analyses the second time, and from this obtained the results of the overall impact of different types of violence in childhood on different educational outcomes.

Classified Meta-analyses. The second strategy was to obtain estimates by hand, using a two-step process. The first step involved excluding the estimates for those studies that reported more than one estimate under one outcome type and one corresponding violence type by excluding the estimates that did not control most covariates and those that reported measures of severity and only retained those estimates that reported abuse or not (for example: removing estimates of severe physical abuse (0/1) and retaining (non)physical abuse (0/1)). For those estimates where it was difficult to decide whether to exclude or retain the estimates, we chose to include the medium estimates of all estimates.

This article presents the findings from the double meta-analysis strategy but findings for the classified meta-analyses are also available at: *[authors to include web extra material URL link here after discussion with the editorial team as to best location to host this material]*.

Results

Tables 3.1-3.4 present findings from the double meta-analyses for studies reporting AORs presented in a format similar to other studies in this field (see for example Abajobir, 2017). We provide the fixed and random effect AOR of the association between different types of violence in childhood according to the educational outcome groupings. An overall estimate of the impact of violence in childhood on educational outcomes is also provided. For educational outcomes related to school absence and also for the ‘other’ category, gender differences were provided since these were present in the included studies.

Table 3.1 presents the findings specifically on the association between forms of violence in childhood and school dropout (8 studies with 18 different outcomes) and school graduation (3 studies with 6 outcomes). For school dropout the findings highlight that all the various forms of violence in childhood increase school dropout with those who experience ‘other’ forms of violence, mostly in the form of being engaged in community violence, being at a two-fold increased risk of also dropping out of school AOR 2.277, 95% CI (1.644-2.91). Similarly, emotional violence also increases a child’s risk of dropping out of school twofold, albeit with a limited number of studies measuring this type of violence and its relationship to school dropout.

We see the opposite relationship with school graduation: experiencing any of the forms of violence in childhood is associated with not graduating from school. The ‘other’ category for type of violence which accounts for community and gang violence, among other forms of violence not listed in the other categories, has the largest association with school graduation, such that those who experience these forms of violence are less likely to graduate from school AOR 0.385, 95% CI (0.212-0.558).

Table 3.2 highlights the findings related to the association between absenteeism and violence in childhood, covering a total of six studies and 14 outcomes from the global systematic review. These findings are also disaggregated by gender since all the included studies for this outcome reported gender differences. The findings indicate that rates of absenteeism as a burden of violence in childhood are higher for males than females and, according to the studies from the review, driven mostly by bullying experiences. Males who experience bullying are nearly three times more likely to also be absent from school as compared to males who do not experience bullying AOR 2.912, 95% CI (0.904-4.92). After bullying, physical violence and sexual violence in childhood have the strongest associations with absenteeism for males. For females, the largest impact on absenteeism is experiencing sexual violence during childhood: girls who experience sexual violence are three times more likely to be absent from school than girls who have not experienced sexual violence AOR 3.147, 95% CI (0.033-4.57). For girls, the second highest impactful form of violence in childhood on absenteeism is bullying which is associated with a two-fold risk of not attending school, AOR 2.301, 95% CI (0.033-4.57).

Table 3.3 showcases findings related to both low and high academic achievement primarily through standardized test scores with findings from 16 studies representing 26 outcome variables. The findings highlight that all forms of violence in childhood impact on academic achievement fairly equally, AOR 1.22, 95% CI (0.816-1.556), with children who have experienced violence being less likely to achieve high grades and test scores (4 studies with 7 outcomes).

Table 3.4 focuses on other educational outcomes such as repeating grades and needing to take remedial classes, based on overall findings from 3 studies with 4 outcomes and findings from 5 gender disaggregated studies with 11 outcomes reported. Overall, all forms of violence impact on these additional educational outcomes with physical violence in childhood having a slightly higher association, AOR 2.202, 95% CI (1.363-3.356). These studies also disaggregated by gender and findings show that all forms of violence impact on these educational outcomes for both boys and girls yet for girls emotional violence appears to have a larger association. Girls who have experienced emotional violence in childhood are at

a 2.5 times increased risk of experiencing these negative educational outcomes (grade repetition, taking remedial classes, etc.) than girls who have never experienced emotional violence, AOR 2.526, 95% CI (1.698, 3.758).

Tables 4.1-4.3 present the findings from the double meta-analyses for the studies reporting MEs. Table 4.1 includes the findings related to dropout and graduation. Overall, based on 12 studies reporting 21 different outcome relationships, students who experience any form of violence of childhood have a 5% predicted probability of dropping out of school, 0.058 ME, 95% CI (0.028, 0.087). This ranges from a low of 4% probability for children who experience bullying to a high of 15% predicted probability for those who experience sexual violence in childhood, 0.087 and .152 ME, 95% CI (0.026, 0.064 and -0.199, 0.504 respectively). For children who experience physical, emotional or other forms of violence, the predicted probability is that an additional 8% will drop out over their counterparts who have not experienced violence.

The results are even starker for graduation rates. Children who have experienced any form of violence in childhood have a 13% probability of not graduating from school compared to those who have not experienced violence, based on eight studies reporting 15 outcomes, -0.137 ME, 95% CI (-0.227, -0.047). In these findings, children who experience physical violence have a negative predicted probability of 20% and those who have experienced sexual violence have a probability of 14% for not graduating, -0.206 and -0.142 ME, 95% CI (-0.403, -0.009 and -0.31, -0.025 respectively).

Only one study reported the marginal effects relationship between violence in childhood and school attendance with 3 different outcome variables (see Table 4.2). The overall findings indicate that there is a 2% predicted probability that children who experience community/gang violence or other forms of violence will be absent from school, -0.028ME, 95% CI (-0.034, -0.022). Further studies are needed on other forms of violence in childhood and the resulting effects on school attendance.

Table 4.3 covers both low and high academic achievement as well as findings related to standardized and raw test scores. Overall, all forms of violence that have been measured impact negatively on academic achievement including learning outcomes. Children who experience violence before the age of 18 have a 9% predicted probability of performing poorly in school compared to their peers who have not experienced childhood violence, 0.09 ME, 95% CI (-0.005, 0.185). Much of this poor performance, in the limited number of studies that measure low academic achievement, appears to be driven by children who have experienced sexual violence, 0.192 ME (0.013, 0.053). On the other hand, all the studies measuring high academic achievement (four studies with 11 outcome relationships) were focused on the relationship between school performance and bullying. Children who have experienced bullying have a 10% predicted probability of also not being high performing students, -0.107 ME, 95% CI (-0.179, -0.035).

Findings show that all forms of violence in childhood impact negatively on standardized test scores (Table 4.3). Children who have experienced sexual violence show the largest predicted probability of scoring lower on standardized tests (by 29 percentile points) compared to children who have not experienced violence. Other forms of violence have similar negative impacts on standardized test scores with physical violence (25 percentile point reduction in standardized test scores), neglect (21 percentile point reduction),

other forms of violence (16 percentile point reduction) and bullying (9 percentile point reduction) when compared to children who have not experienced violence. Experiencing violence in childhood also leads to a predicted probability of a decrease in raw test scores.

When exploring the marginal effects of other educational outcomes such as engagement on bullying, the findings show a strong relationship. For children who experience bullying, there is a 35% predicted probability that other educational outcomes such as engagement and participation will be negatively impacted, -0.354 ME, 95% CI (-1.071, 0.363).

Limitations of the study

There are several limitations that should be highlighted. First, very few studies disaggregated their findings by gender. For those that did, they were also disaggregated for the meta-analyses and important gender distinctions were found. For example, boys who experienced bullying were more likely to be absent from school, whereas for girls, sexual violence was the most influential form of violence on their absenteeism. In addition to gender, understanding the impact of a child's age on the relationship between violence and educational outcomes is crucial. The concept of the developmental life course impacts on both the types of violence that children may experience but also how this violence may impact on their developing brains (Lansdown, 2004; Chong, Hallman, & Brady, 2006).

Second, both the violence in childhood and education fields have similar challenges in definitional agreement and use of consistent measures for key variables such as different types of violence or various educational outcomes. These differences across studies make comparisons difficult. Furthermore, many studies will report multiple outcome relationships making meta-analyses more difficult to calculate. This study undertook two strategies to solve these limitations and found no significant difference between the double meta-analysis versus the classified meta-analysis approaches as specified in the methods section. However, these challenges point to the need for commonly agreed measurements that can be used across studies.

Thirdly, the systematic review included studies that reported AORs, RRs and MEs only based on previous research from the field. This may have excluded studies that reported other types of effect sizes. Furthermore, this study is based on quantitative data and because of the approaches used does not include qualitative data, which is critical for understanding and contextualizing ways in which and why violence in childhood has these impacts on education. Further reviews exploring qualitative data to unpack pathways through which violence in childhood impacts on educational and especially learning outcomes are needed. Fourthly, this study did not disaggregate findings to various levels based on the lack of disaggregation within the primary studies. For example, findings were not disaggregated by the setting in which the violence occurred (home, school, community) and it may be that the particular setting has a larger impact on educational outcomes. This study only disaggregates by gender for studies that reported that information and important gender-specific differences did emerge in the data. Future studies should also disaggregate by age to further understand the developmental aspects of childhood on these outcomes. Lastly, this data includes low-, middle- and high-income country data, but the majority of the studies are from high-income countries. The impact of schooling, government policies more broadly, existing interventions

and other key aspects of educational policy would be important to explore further in relation to these relationships in order to make targeted recommendations.

Discussion

This article reports on the first study to estimate the global burden of violence in childhood on educational outcomes. Despite the limitations described above, this study represents a significant new contribution to the understanding of how and to what extent different forms of violence in childhood contribute to inequalities in education. The findings provide robust evidence that all forms of violence in childhood significantly impact on a variety of educational and learning outcomes. In particular, bullying appears to have a strong influence on school attendance and participation through school engagement and less of an impact on academic achievement compared to other forms of violence. This is an area that needs further research, especially given the high prevalence of bullying in every country where it is measured (UN Secretary General, 2016). The findings also show that sexual violence has a significant impact on educational outcomes, especially on standardized test scores where those who have experienced sexual violence in childhood scored 25 percentile points lower than their peers who have not experienced sexual violence. Other forms of violence in childhood, including physical violence, neglect and community violence have also been shown to impact significantly on standardized test scores. These are important findings that support the idea that prevention of violence in childhood can be viewed as a key strategy for raising attainment and improving educational outcomes globally for both boys and girls.

Increased investment in violence prevention is an important strategic aim for ending all violence against children, enhancing educational outcomes and ensuring that students are learning in safe, non-violent and inclusive environments. One step in this direction would be to link effective approaches to preventing violence in childhood (WHO et al., 2016) more explicitly to SDG 4. The work of the Global Partnership to End Violence Against Children, launched in July 2016 with the overall aim of supporting SDG Target 16.2: the end of abuse, exploitation, trafficking, torture and all forms of violence against children by 2030, has led on the development of new, unified efforts to develop a package of seven evidence-based strategies to reduce violence. These are focused on the need to:

1. Implement and enforce laws to protect children (including those on ending corporal punishment in schools)
2. Value social norms and values that protect children
3. Sustain safe environments for children
4. Provide parent and caregiver support
5. Empower families economically
6. Raise access to response and support services
7. Help children develop life skills and stay in school

The WHO has emphasized that these seven strategies should be complemented by robust monitoring and evaluation and multi-sectorial coordination (WHO et al., 2016) and this can

be achieved in part by linking where possible to indicators associated with SDG Target 4.a: building and upgrading education facilities that are child, disability, and gender sensitive and provide a safe non-violent and inclusive and effective learning environments for all. Safe, non-violent and effective learning environments are important spaces that can be enhanced and supplemented by buildings and facilities, but are not be limited by them. As Cobbett, McLaughlin and Kiragu's (2013) work on sex education in Kenya, Ghana and Swaziland reminds us, space is created by what happens in it.

As several regional systematic reviews on the burden of violence in childhood have highlighted, there is a lack of comprehensive data on the relationship between violence and educational outcomes (Fang et al., 2015; Gilbert et al., 2009; Fry et al., 2016). To this end, it will be important to link the growing literature on educational outcomes and how they can be improved, to what we can learn from this systematic study of the effects of violence in childhood on these outcomes. More work on what these educational outcomes are, how they are defined and how they are measured is also now urgently needed.

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*** indicates studies included in systematic review and + indicates studies included in meta-analyses**

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Table 1: Definitions of Violence in Childhood Used in This Study

Physical violence	That which results in actual or potential physical harm from an interaction or lack of an interaction, which is reasonably within the control of a parent or person in a position of responsibility, power or trust. There may be single or repeated incidents.
Sexual violence	Child sexual violence is the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared and cannot give consent, or that violate the laws or social taboos of society. Child sexual violence is evidenced by this activity between a child and an adult or another child who by age or development is in a relationship of responsibility, trust or power, the activity being intended to gratify or satisfy the needs of the other person.
Emotional violence	Emotional violence involves the failure to provide a developmentally appropriate, supportive environment, including the availability of a primary attachment figure, so that the child can develop a stable and full range of emotional and social competencies commensurate with her or his personal potentials and in the context of the society in which the child dwells. There may also be acts towards the child that cause or have a high probability of causing harm to the child's health or physical, mental, spiritual, moral or social development. These acts must be reasonably within the control of the parent or person in a relationship of responsibility, trust or power. Acts include restriction of movement, patterns of belittling, denigrating, scapegoating, threatening, scaring, discriminating, ridiculing or other non-physical forms of hostile or rejecting treatment.
Neglect	Neglect can be defined as the failure to provide for the development of the child in all spheres: health, education, emotional development, nutrition, shelter, and safe living conditions, in the context of resources reasonably available to the family or caretakers and causes or has a high probability of causing harm to the child's health or physical, mental, spiritual, moral or social development. This includes the failure to properly supervise and protect children from harm as much as is feasible.
Witnessing domestic violence	The systematic review included studies, which measured childhood exposure to violence in the home, as perpetrated by family members towards others.
Bullying	Bullying involves repeated exposure over time, to negative actions on the part of one or more other persons, and the victim has difficulty defending himself or herself. This systematic review includes studies on both bullying perpetration and bullying victimization, as well as cyber-bullying and peer-to-peer victimization.
Adolescent relationship violence	Often called teen dating violence or intimate partner violence, adolescent relationship violence entails the perpetration and/or victimisation of violence between intimate partners during teenage years, which can take many forms - physical, sexual or emotional, or a combination of these.
Community violence	This systematic review includes studies on exposure to community violence, which can involve witnessing, perpetrating or direct victimisation of interpersonal violence in any space used or occupied by children other than homes, schools, institutions or organised workplaces. Different forms of community violence include physical violence, sexual violence, assault by authority figures such as the police and violence associated with gangs and traffickers.

Definitions are from the *UN Convention on the Rights of the Child*, the *World Report on Violence and Health*, *World Health Organization*, 2002, and the UN Secretary-Generals' *World Report on Violence against Children*, 2006. The sexual violence definition is from the Report of the Consultation on Child Violence Prevention, 29-31 March 1999. Geneva, World Health Organization, 1999 (document WHO/HSC/PVI/99.1). The bullying definition is from Olweus, D. (1995). *Bullying at school: What we know and what we can do*. 1993. *Malden: Blackwell Publishing*, as used by UNESCO. The adolescent relationship violence definition is from the CDC's Division of Violence Prevention.

[Insert Figure 1 here – attached in separate file]

Table 2: Studies Meeting Inclusion Criteria for the Systematic Review

Study Number	Authors Information	Country	Year of Data Collection	Study Design	Type(s) of Violence Studied	Definition of Outcome/Tool of measurement	Type(s) of Educational Outcomes Explored	Definition of Outcome/Tool of measurement
1	Allwood, M.A. & Widom, C.S.	United States	1967-1971 and 1989-1995	Cohort: Prospective	Child Abuse and Neglect	Court substantiated cases over 5 years (1967-1971) of any of the 3 types of maltreatment: 1) childhood physical abuse; 2) childhood sexual abuse; and 3) neglect	High school graduation	Participants were asked about their highest level of school completed. The information was dichotomised to indicate whether or not each participant had completed high school.
2	Hyman, B.	United States	1984-1985	Cross-sectional	Childhood Sexual Abuse	Questions included in the National Lesbian Health Care Survey (NLHCS) which asked women if any of their relatives had sex with them while they were growing up, or if they were raped or sexually attacked while growing up.	College education	Participants completed the NLHCS which asked whether the woman had graduated from college.
3	Barker, B., Kerr, T., Dong, H., Wood, E. & Debeck, K.	Canada	2005-2013	Cross-sectional	Sexual abuse Physical Abuse Emotional Abuse Physical Neglect Emotional Neglect	Childhood Trauma Questionnaire (CTQ), a 25-item survey which assesses 5 different forms of maltreatment using a 5-point scale. Scores are converted to 4 levels of maltreatment, which were collapsed into 2 categories for this study: 1) 'none/low' and 2) 'moderate/severe'.	High school incompleteness	Data for this study were collected for the At-Risk Youth Study (ARYS). Participants reported not completing high school due to dropping out or expulsion.
4	Turner, H.A., Finkelhor, D., Shattuck, A., Hamby, S. & Mitchell, K.	United States	1993-2012	Cross-sectional	Peer victimization involving injury Peer victimization involving weapon Peer victimization involving power imbalance Peer victimization involving sexual content Peer victimization involving internet component	'Enhanced' version of Juvenile Victimization Questionnaire (JVQ), which asks about 51 specific types of violence. Only victimization perpetrated by nonsibling peers which included in the past year were included in the analysis.	Child missed school because of the incident	Telephone Interviews were conducted in which respondents were asked whether they <i>missed school</i> because of the incident of peer victimisation.

					Peer victimization involving bias component e.g. skin color, religion			
5	Devries, K.M., Child, J.C., Allen, E., Walakira, E., Parkes, J. & Naker, D.	Uganda	2012	Cross-sectional	Past week physical violence from staff	ICAST-CI, which measures physical violence using 24 items. Students who answered yes to any of the items were considered to have experienced physical violence.	Low performer on educational tasks	Educational tests were adapted from a trial in Kenya and included word recognition tests in English and Luganda; timed reading tests in English and Luganda; and reading comprehension in English and Luganda. Tests administered in groups were silly sentences spelling in English, and basic math. Global educational performance score relative to peers was computed by adding up the number of times a student scored in the bottom third of the overall distribution for each individual educational test, divided by the number of completed tests. Those in the bottom 10% of students from this distribution were coded as “low performers” and those in the top 90% as “not low performers.”
6	Glew, G.M., Fan, M.Y., Katon, W., Rivara, F.P. & Kernic, M.A.	United States	2001-2002	Cross-sectional	Bullying	Four questions about bullying were accepted by the school district for use in the internal school climate survey, along with 33 other questions. These 4 questions asked about how often students were made fun of, bothered or hurt by peers, where these experiences have occurred; if they told anyone about it; and, how often they made fun of, bothered or hurt other students) were taken from a larger, reliable, well-validated bullying survey (Olweus, 1996) and adapted for the age groups surveyed. Children who said they were hurt, bothered, or made fun of always, as opposed	Achievement score Attendance % Suspension or expulsion	The Washington Assessment of Student Learning and the Iowa Test of Basic Skills, were administered in 2002. Each examination consisted of subtest scores for reading, math, and listening. A composite score was created for each child, which was used as a proxy for academic achievement. School Data was used to assess school attendance which was expressed as a percentage of days attended of days enrolled during the 2001-2002 school year. School Data was used to categorise students as suspended or expelled if they experienced

						to sometimes and never, were considered victims. Children who said they bullied others 2 to 3 times per month or more were classified as bullies. Children who fit criteria for both bullies and victims were removed from the “bullies only” and “victims only” categories and treated as a separate “bully-victim” group.		either of these during the 2001-2002 school year.
7	Maclean, M.J., Taylor, C.L. & O'Donnell, M.	Australia	2008-2010	Cohort	Sexual violence Physical violence Emotional violence Neglect	The Department for Child Protection and Family Support provided information on child maltreatment allegations (reports to the Department of suspected abuse or neglect), substantiations of maltreatment and out-of-home care. Children were coded as having a maltreatment allegation if they had any recorded allegation.	Low reading scores	The National Assessment Program – Literacy and Numeracy (NAPLAN) was introduced in 2008, and is sat by all Australian Year 3 students. Children were categorised as having low reading achievement if they scored in the lowest 10% of students within their test year on the NAPLAN reading test.
8	Rothon, C., Head, J., Klineberg, E. & Stansfeld, S.	United Kingdom	2001-2003	Repeated measures	Bullying	Bullying was measured at baseline with a self-report question. The item used to measure whether an adolescent had been subjected to bullying was as follows: “how often have you been bullied in school this term?” Those who reported being bullied once or twice in a term were combined with the category for never being bullied because bullying is defined as a repeated action.	Reached achievement benchmark attainment	For the younger age group, the benchmark used for educational achievement at age 13–14 was the attainment of level 5 or above in English, mathematics and science in the Key Stage 3 examinations. For the older group, the benchmark was the attainment of 5 or more General Certificate of Secondary Education Examinations (GCSEs) at grades A–C (taken at age 15–16). These benchmarks are used by the Department of Education and Skills as an indicator of adequate performance
9	Alyahri, A. & Goodman, R.	Yemen	2002-2003	Cross-sectional	Harsh corporal punishment	Disciplinary approaches were assessed by asking the mother: “Sometimes children behave	Poorer school performance	<i>School performance</i> was assessed from routinely collected school data, with each child being rated

						very badly so that adults lose patience with them. Tell me how you deal with [name of index child] when he/she behaves very badly.” Harsh corporal punishment was defined as the mother answering ‘yes’ to hitting her child with a stick, belt or any other object; tying; pinching; and biting.		by teachers on a 5-point scale (excellent, very good, good, acceptable, and failed) according to their classroom and examination performance.
10	Boynton-Jarrett, R., Hair, E. & Zuckerman, B.	United States	1997-2007	Cohort: Prospective	Cumulative exposure to violence (CEV): (1) Direct victimization; (2) Perceived school safety; (3) Threat of violence; and (4) Witnessing violence Exposure to gang activity	<p>Direct victimization was assessed at baseline and following the participants 18th birthday by asking about repeated bullying as follows: “Before you turned age 12 (or between the ages of 12 and 18), were you ever the victim of repeated bullying?” A single question was asked on the 2002 follow-up survey about criminal victimization between 1997 and 2002: “In the last five years, have you been the victim of a violent crime, for example, physical or sexual assault, robbery, or arson?”</p> <p>Perceived school safety was assessed with a single question in 1997, “Do you feel safe at school?” Responses were assessed on a 4-point Likert-like scale and dichotomized as unsafe (disagree to strongly disagree) versus safe (agree to strongly agree).</p> <p>Threat of violence was assessed in 1997 as the number of times someone had “threatened to</p>	High school graduation	The U.S. National Longitudinal Survey of Youth 1997 (NLSY97) used computer-assisted personal interviews (CASPI) to collect information. High school graduation was assessed using a dichotomous measure of whether participants ever received a high school diploma or GED between 1997 and 2006.

						<p>hurt” the respondent at school on a scale of 0-50 plus.</p> <p>Witnessing violence was measured by asking youth about witnessing gun violence with the following questions: “Before you turned age 12 (or between ages 12 and 18), did you ever see someone get shot or shot at with a gun?”</p> <p>We dichotomized and summed the self-reported violence exposures to create the Cumulative Exposure to Violence (CEV) score. The CEV index ranged from 0 to 4 (M=0.88, SD=1.09).</p> <p>Self-reported gang involvement was queried in each survey up to age 18 years. A dichotomous measure was created.</p>		
11	Bradshaw, C.P., Waasdorp, T.E., Goldweber, A. & Johnson, S.L.	United States	2011	Cross-sectional	Bullying	<p>The Maryland Safe and Supportive Schools Initiative (MDS3) Climate Survey included a definition of bullying, which read, “A person is bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other persons. Bullying often occurs in situations where there is a power or status difference. Bullying includes actions like threatening, teasing, name-calling, ignoring, rumor spreading, sending hurtful emails and text messages, and leaving someone out on purpose.” Then a series of questions asked “During the</p>	<p>Truancy</p> <p>Poor grades</p>	<p>Truancy was assessed through the following question based on the Youth Risk Behaviour Surveillance System (YRBS) ‘During the past 30 days, how many days of school have you missed because you skipped or ‘cut’?’</p> <p>Poor grades were assessed through the following question: ‘On your last report card, what grades did you receive?’ The response options were mostly As, Bs, Cs, Ds, or Es/Fs. Given the distribution of the responses, the responses were dichotomised into As and Bs, versus those who reported Cs or worse.</p>

						past 30 days, how often have you been bullied?”, to assess victimization, and “In the past 30 days, how often have you bullied someone else?”, to assess perpetration. The response options for both questions were once a week, 2-3 times during the month, 1 time during the month, or not at all. Responses were coded into four bullying subgroups: bully, victims, bully/victims, and low involvement.		
12	Brendgen, M., Wanner, B., Vitaro, F., Bukowski, W.M. & Tremblay, R.E.	Canada	Not stated. Occurs over 17 years. (Published 2007)	Cohort: Prospective	Verbal abuse by teacher	Peer nomination procedures: Booklets of photographs (for kindergarten and Grade 1) or names (Grades 2 and above) of all the children in a given class were handed out to the participants, and the children were then asked to circle the photos (or names) of up to three children who best matched several descriptors. In regard to verbal abuse by the teacher, children were asked to circle the photos (or names) of up to three children “who always get picked on by the teacher.” “Picked on” was defined as behaviours such as scolding, criticizing, or shouting at a student. Separately for each year of assessment, the total number of received nominations was calculated for each participant and z standardized within the classroom.	High school graduation	At age 23, information from the Quebec Ministry of Education was obtained regarding whether participants had received a high school diploma by that time or not.
13	Chapple, C.L. and Vaske, J.	United States	1979-1996	Cross-sectional	Educational neglect Physical neglect Emotional neglect	The neglect measures were taken from the HOME-SF. For educational neglect, mothers were asked whether they helped their child learn the alphabet, numbers, colors and shapes	Remedial classes needed Suspension Grade retention	Mothers were asked "Does your child go to a special class or get special help in school for remedial work?" They were also asked whether their "child has ever been suspended or expelled

						<p>(0=no, 1=yes). The answers were summed to form a learning variable (0=none to 4=all four). Mothers were also asked how often they read to their child. These two items were summed to form a composite scale of educational neglect.</p> <p>The measure of physical neglect was based on an interviewer rating of whether the home appeared safe, reasonably clean and minimally cluttered.</p> <p>The emotional neglect measure was an interviewer-reported observation of the mother's verbal interactions with her child during the 1988 interview. Interviewers reported whether the mother "conversed with the child at least twice during the interview," whether the mother "answered the child's questions verbally," and whether the mother "spoke to the child at least twice during the interview".</p>		<p>from school" Finally, mothers reported whether their student had been held back in any grade from kindergarten to 9th grade. The variables were measured dichotomously.</p>
14	Fantuzzo, J.W., Perlman, S.M. & Dobbins, E.K.	United States	1990-2008	Cohort	Physical abuse Neglect	<p>Data on substantiated child maltreatment allegations. provided by the Department of Human Services. Substantiated allegations were classified by type using the Child Maltreatment Coding System developed by Shonk and Cicchetti (2001).</p>	<p>Reading test scores Mathematics test scores Language test scores Science test scores Learning Behaviors Performance Assessment (LBPA) Social Skills Performance Assessment (SSPA) Poor attendance Suspensions</p>	<p>Outcomes were assessed using the TerraNova, Second Edition which is a group administered achievement test considered to be among the most reliable and valid of all standardized achievement tests. Standard scores are provided across two subtests related to reading: reading and language. Standard scores were also provided for math and science subtests. The Learning Behaviors Performance Assessment (LBPA)</p>

								<p>is a teacher evaluation of children's learning behaviours within the classroom. The Social Skills Performance Assessment (SSPA) is similar in format to the LBPA.</p> <p>For all above tests children scoring below the 15th percentile were coded as having inadequate school performance, while children performing at or above the 15th percentile were coded as having adequate school achievement.</p> <p>Attendance and Suspension data were obtained from the School District's computerised records. To create a dichotomous variable, the percentage of days absent were calculated for each student and divided into quartiles. Attendance was coded as poor if absentees fell into the highest quartile and low if it fell into the lowest three quartiles. Children were identified as experiencing suspension if they were identified in the School District database as having experienced one or more in-school or out-of-school suspensions.</p>
15	Hansen, H.H., Hasselgård, C.E., Undheim, A.M. & Indredavik, M.S.	Norway	2009-2011	Cross-sectional	Bullying	<p>The statements concerning bullying behaviour were preceded with the following explanation: "Do some of the following happen to you now, or has it happened before?". Victimization was assessed with three different statements: "called something negative by peers", "excluded by peers" and</p>	Skipping school	<p>Adolescents responded to an electronic questionnaire at the clinic in which they were asked whether they had skipped school.</p>

						<p>“harassed, beaten, kicked or attacked in some way”, graded on a 4-point scale from never (0) to very often (3).</p> <p>Bullying others was assessed with the statement: “bully, teases or exclude other peers”, graded on a 4-point scale from never (0) to very often (3). The adolescents were categorized into four mutually exclusive groups: (1) victims, (2) bullies, (3) bully-victims and (4) non-involved (i.e. neither victim nor bully).</p> <p>The results from the different statements were dichotomized into adolescents who were exposed often or very often to any of the items (higher-bound cut-offs) versus adolescents who reported never or only from time to time.</p>		
16	Holt, M.K., Greif Green, J., Reid, G., DiMeo, A., Espelage, D.L., Felix, E.D., Furlong, M.J., Poteat, V.P. & Sharkey, J.D.	United States	2012	Cross-sectional	Bullying	The California Bully Victimization Scale (CBVS) assessed childhood bullying by asking about the 3 core definitional components of bullying: peer victimization that is (a) intentional, (b) repeated, and (c) involves an imbalance of power between the target and the aggressor. The CBVS measured the presence of 8 forms of victimization prior to college: teasing, rumor spreading, social exclusion, hitting, threatening, sexual	Academic performance in college	Students were asked whether they had received a course grade of below a B since starting college. The response options were yes and no.

						<p>jokes/gestures, stealing, and aggression via the Internet. Respondents were asked to rate the frequency of each form of victimization endorsed on a 5-point scale (a few times a year, about once a month, 2 or 3 times a month, about once a week, several times a week). Using the item skipping logic of the online survey, if respondents reported repeated victimization (2 or 3 times a month or more) they were also asked to indicate whether the “main person” who was the aggressor during their childhood, compared with the respondent, was perceived to have a power advantage by virtue of being (a) more popular, (b) more intelligent, (c) physically stronger, (d) more attractive, (e) more athletic, (f) having more money, or (g) being older. Respondents were categorized as victims of bullying if they endorsed repeated victimization (on 1 or more forms of victimization) and indicated that the aggressor was more powerful; that is, they recalled experiencing repeated victimization by an aggressor against whom they could not adequately defend themselves.</p>		
17	Kernic, M.A., Holt, V.L., Wolf, M.E., McKnight, B., Huebner, C.E. & Rivara, F.P.	United States	1996-1999	Case-control	<p>Witnessing parental violence Child abuse</p>	<p>Children were considered to have witnessed parental violence if their mothers experienced police- or court-reported male-perpetrated intimate partner violence.</p>	<p>Any academic suspension Any academic expulsion Frequent absenteeism Cumulative grade point average (GPA)</p>	<p>School records of children were used to determine all of the outcomes.</p>

						Child abuse data were collected for IPV-exposed children using referrals made to police department by child protection services for investigation of physical abuse, sexual abuse or severe neglect.	Receipt of special education services Grade retention	
18	Orpinas, P. & Raczynski, K.	United States	2002-2008	Longitudinal	Relational victimization	Measured using a 6-item scale ($\alpha = 0.76$) that assesses the frequency of having been the victim of negative rumors or lies, left out on purpose, or forced to do things to be liked (Farrell, Kung, White, & Valois, 2000). The time frame for both scales was the month prior to the survey. Response categories ranged from never (1) to 20 or more times (6). The scales were computed as the average of the items, with higher scores indicating more victimization.	School dropout by grade twelve	Dropout status was defined based on school records and student interviews.
19	Peguero, A.A.	United States	2002-2006	Longitudinal	Exposure to violence and victimization at school	Students were asked if they had been exposed to various forms of violence and victimization at school during the 2001-2002 academic year. Exposure to violence and victimization is measured by three items that include the following: (a) someone threatened to hurt me at school, (b) someone hit me, (c) someone used strong-arm or forceful methods to get money or things from me. The measure of victimization is dichotomized to indicate whether or not the student was exposed to violence or victimized at school.	School dropout	Dropout indicates if the student was no longer enrolled in school by the subsequent wave of the study that occurred 2 years after the base year of the study beginning.
20	Woods, S. & Wolke, D.	United Kingdom	Not stated	Cross-sectional	Physical bullying Relational bullying	Questions on bullying were adapted from the Olweus (1993) Bullying Questionnaire.	Underachieve on SATs Test Results	The Key Stage 1 National Curriculum Assessment (SATs 1) for 7-year-olds (year 2)

					<p>Children were asked whether they had experienced any of six behaviours in the last 6 months that had upset them: (1) having been called bad or nasty names, (2) having belongings taken, (3) having lies told about them, (4) having nasty tricks played on them, (5) having been threatened or blackmailed, (6) having been hit or beaten up. They were then asked how frequently these incidents happened. The six behaviours were then repeated and the child was asked whether they have used these behaviours to upset other children and how often they had done this over the last 6 months (never or seldom: one to three times during past 6 months, frequently: four times or more during past 6 months, very frequently: at least once per week).</p> <p>Children were asked four questions relating to relational bullying at school: (1) other children saying that they did not want to play with them; (2) other children saying that they would not be the child's friend anymore; (3) other children telling nasty stories that were not true about them; (4) Other children deliberately spoilt their games. If the child responded that they had experienced any of the above behaviours, the child was asked to supply a description with examples. This was carried out to ensure that the behaviours had been deliberate, that there was a</p>		<p>comprised of five tests: (1) The Writing Task, (2) Spelling Task, (3) The Reading Comprehension Task (4) The Reading Task, and (5) Mathematics Task.</p>
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						<p>perceived imbalance of power, and to ascertain that the perpetrator(s) were children that the child normally played with. Children were then asked to express how frequently the incidents occurred in the last 6 months for each of the four questions.</p> <p>According to the results of the interview and the frequency of bullying events reported, children were classified using a standardised coding manuscript into groups for physical direct bullying and relational bullying.</p>		
21	Thornton, M., Darmody, M. & McCoy, S.	Ireland	2007-2008	Cohort	Witnessing family conflict Bullying	Data were from Growing up in Ireland (GUI) – the National Longitudinal Study of Children in Ireland. Mothers reported whether their child had witnessed family conflict, or if their child had been bullied in the last year.	Persistent absenteeism	National Education Welfare Board (NEWB), collects data on school absenteeism and persistent absentees were defined as children who were absent more than 20 days.
22	Steiner, R.J. & Rasberry, C.N.	United States	2013	Cross-sectional	Bullying in person and electronically	Data are from the 2013 national Youth Risk Behavior Survey (YRBS). Participants answered two items about bullying victimization: “During the past 12 months, have you ever been bullied on school property?” and “During the past 12 months, have you ever been electronically bullied?” (include being bullied through e-mail, chat rooms, instant messaging, Web sites, or texting). Responses from both questions were used to create a categorical predictor variable: 1-bullied in-person and electronically; 2-bullied only in-person; 3 bullied only	Missing school	Using the YRBS, participants reported missing school >1 day(s) during the past 30 days because they felt they would be unsafe at school.

						electronically; and 4-not bullied.		
23	Smith, J.F. & Skrbiš, Z.	Australia	2006-2013	Cohort	Bullying	In waves 1-3, respondents were asked if they had ever been bullied by other kids with the following response options: never, within the last 6 months, within the last year, and more than a year ago.	Australian Tertiary Admission Ranking (ATAR) system: ATAR > 70	Australian Tertiary Admission Ranking (ATAR) system: ATAR > 70
24	Thompson, R. & Whimper, L.A.	United States	1991 onwards	Cohort	Maltreatment Witnessed family violence	<p>Maltreatment data was collected from Child Protective Services (CPS) report. Child maltreatment was considered to have occurred if any maltreatment allegations had been reported to CPS from infancy through age 12.</p> <p>Children were asked whether they had witnessed any of eight forms of violence, ranging from minor acts of physical assault to severe forms of violence, including murder. Each positive endorsement of a witnessed event elicited follow-up questions that included who the victim(s) and perpetrator(s) were for each type of event endorsed (options included specific family members, friends, and strangers). For these analyses, the responses to this scale were dichotomized into two scales—children were categorized as to whether they had witnessed any form of violence that involved a nonfamily member either as a perpetrator or a victim and whether they had witnessed any form of violence that involved a</p>	Wide Range Achievement Test–Reading	Children aged 12 undertook the Wide Range Achievement Test–Reading (WRAT). This standardized test assesses an individual’s ability to recognize and name letters and pronounce words of increasing difficulty. Its scoring manual allows the calculation of reading grade levels, based on the responses. In these analyses, children with a reading level of fifth grade or lower were defined as having poor reading levels in the dichotomized WRAT outcome measure.

						family member either as a perpetrator or a victim.		
25	Tanaka, M., Georgiades, K., Boyle, M.H. & MacMillan, H.L.	Canada	1983 and 2000-2001.	Cross-sectional	Severe physical abuse Non-severe physical abuse Sexual Abuse	<p>Measured using the Childhood Experiences of Violence Questionnaire (CEVQ) Short Form. Child physical abuse was assessed by three items: How many times before age 16 did an adult . . . (1) slap you on the face, head or ears or hit or spank you with something like a belt, wooden spoon or something hard? (2) push, grab, shove or throw something at you to hurt you? (3) kick, bite, punch, choke, burn you, or physically attack you in some way? Severe physical abuse was present if item 1 or 2 was reported to have occurred more than 10 times or if item 3 had occurred at least 1 to 3 times. All other experiences of physical abuse were categorised as non-severe.</p> <p>Sexual abuse was measured by asking, “Before age 16 when you were growing up, did anyone ever do any of the following things when you didn’t want them to: touch the private parts of your body or make you touch their private parts, threaten or try to have sex with you or sexually force themselves on you?”</p>	High School Graduation	Using the Ontario Child Health Study (OCHS), failure to graduate from high school was assessed by a question, “Have you graduated from high school?”
26	Tajima, E.A., Herrenkohl, T.I., Moylan, C.A. & Derr, A.S.	United States	1976-1977. 1980-1982. 1990-1991.	Longitudinal	Witnessing parental violence Child Abuse	Witnessing parental violence was measured through exposure to intimate partner violence as self-reported by adolescent and/or parents. IPV exposure included mother-to-father or	High school dropout	High school dropout is based on youth reports and is a dichotomous variable which indicates whether or not an individual had dropped out of high school before graduation

						<p>father-to-mother physical violence (hitting, pushing, or kicking), threatened physical harm, or destroyed something. Reports were dichotomized as: “Never” (0); and “rarely,” “sometimes,” or “often” (1).</p> <p>Child abuse was a dichotomous (yes/no) composite variable of three dimensions: primary caregivers’ self-reports of their own severe physical disciplining of their children (gathered during the preschool and school-age waves of data collection); whether or not the family was involved with child protective services for child abuse or neglect (measured at preschool or school-age); and retrospective youth reports of experiencing child abuse (gathered during the adolescent wave of data collection).</p>		
27	Fry, D., Anderson, J., Hidalgo, R.J., Elizalde, A., Casey, T., Rodriguez, R., Martin, A., Oroz, C., Gamarra, J., Padilla, K. & Fang, X.	Peru	2013	Cross-sectional	<p>Witnessing family fights</p> <p>Psychological violence at home</p> <p>Verbally threatened at home</p> <p>Physical violence at home</p> <p>Non-contact sexual violence</p> <p>Contact sexual violence</p> <p>Any sexual violence</p> <p>Peer-to-peer psychological violence at school</p> <p>Peer-to-peer physical violence victimization at school</p>	Data from the 2013 pilot of the National Survey on Social Relations (ENARES, by its acronym in Spanish). Each type of violence was measured using several questions. See source for more details.	<p>Failed course in last year</p> <p>Ever repeated grade</p> <p>Ever expelled</p>	Respondents were asked a series of three questions regarding educational experiences: In the last year (2012), did you fail any course? Have you ever repeated a grade (in primary school) or year? Have you ever been expelled from school?
28	Geoffroy, M.C.,	United Kingdom	1958 onwards	Cohort	<p>Cumulative neglect</p> <p>Physical abuse</p>	Neglect was identified from information collected	No qualifications < O-Level or equivalent	Using data from the British National Child Development

	Pereira, S.P., Li, L. & Power, C.				Psychological abuse Sexual abuse Witnessed physical or sexual abuse in the family	prospectively in childhood (7 and 11 years) and retrospectively in adulthood (45 years). In childhood, information was obtained from parental interviews (usually the mother) and the child's teacher, using structured questionnaires. A neglect scale was derived for ages 7 and 11 years separately by summing 5 items on the child's physical appearance and parental involvement with the child (Tables 1 and 2). If 2 items were missing, they were imputed (statistical analysis); if >2 items were missing, the score was treated as missing. In addition, neglect to 16 years was recalled at 45 years using 3 items summed to create a retrospective scale. Prospective and retrospective neglect scales were summed to give a cumulative scale. Childhood abuse to 16 years was reported in adulthood (45 years) using a confidential direct computer data entry questionnaire that included the 3 neglect questions; this was derived from the Personality and Total Health Through Life Project. We created 4 binary variables: physical, psychological, sexual, or witnessing abuse.	O-Level or equivalent A-Level or equivalent	Study (NCDS) the highest qualification level by 42 years of age was self-reported.
29	Brown, S. & Taylor, K.	United Kingdom	1958 onwards	Cohort	Bullying	The British National Child Development Study (NCDS) asks the mother whether their child is bullied at ages 7 and 11 years. At age 16 years, the parent is asked whether they think their child bullies others.	No O Levels Nine+ O levels No education Degree	Using data from the NCDS, educational attainment is measured by the number of Ordinary (O) levels accumulated at age 16 as well as the highest level of educational attainment at ages 23, 33 and 42.

30	Contreras, D., Elacqua, G., Martinez, M. & Miranda, Á.	Chile	2008-2009	Cohort	Bullying	Two sets of questions regarding bullying in schools are used following the European School Survey Project on Alcohol and Other Drugs (ESPAD). The survey asks about intensity (never, once, twice, three or four times, five or more times) with which the individuals have participated in the following actions over the past 12 months: 1. Participated in a group that has bothered a classmate who is alone. 2. Participated in a group that has physically attacked a classmate who is alone. 3. Participated in a group that has started a fight with another group. 4. Started a fight alone with another classmate.	School performance	The result variable of this article corresponds to student performance. In Chile, the grading scale starts at 1 and ends at 7, with 7 representing the highest possible performance. In order to pass a grade, a student must attain at least a final average grade of 4.0. The dependent variable is determined as follows: (4.0–4.9, 5.0–5.4, 5.5–5.9, 6.0–6.4, 6.5–7.0).
31	Hammig, B., & Jozkowski, K.	United States	2009	Cross-sectional	Injured in fight in past 12 months Bullied in past 12 months Threatened at school in last 12 months Victim of IPV in last 12 months (Females only) Sexually assaulted (Females only)	Data are from the 2009 Youth Risk Behavior Survey (YRBS). Having incurred a fight-related injury during was measured by the following item, “During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?” Bullying victimization was measured by responses to the following item, “During the past 12 months, have you ever been bullied on school property?” Bullying was defined for the respondents, “when 1 or more students tease, threaten, spread rumors about, hit, shove, or hurt another student over and over again. It	Grades: Mostly Cs versus mostly As/Bs and Mostly Ds/Fs versus mostly As/Bs	Data from the 2009 YRBS were used. Academic performance was measured by response to the following question, “During the past 12 months, how would you describe your grades in school?” Response choices ranged from “mostly As” to “mostly Fs.” In addition, response choices of “none of these grades” and “not sure” were also included. Responses were categorized into three levels: “Mostly As or Bs,” “Mostly Cs,” and “Mostly Ds or Fs.”

						<p>is not bullying when 2 students of about the same strength or power argue or fight or tease each other in a friendly way.”</p> <p>Having been threatened or injured with a weapon on school property during the past 12 months was measured by the following item, “During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?”</p> <p>Intimate partner violence victimization was assessed by the following item, “During the past 12 months, did your boyfriend or girlfriend ever hit, slap, or physically hurt you on purpose?”</p> <p>Sexual assault victimization was assessed with the question, “Have you ever been physically forced to have sexual intercourse when you did not want to?”</p>		
32	Henrich, C. C., Schwab-Stone, M., Fanti, K., Jones, S. M., & Ruchkin, V.	United States	1998-2000	Longitudinal: 2 years	Community violence Fighting, hurting someone badly in a fight, carried a gun, been in gang fights, been arrested and carried a knife	Witnessing violence was assessed using an index of seven SAHA items adapted from the widely used Survey of Exposure to Community Violence. Students were asked whether they had witnessed several types of violence in the past 2 years, including whether they had seen others chased by gangs or individuals, seen others threatened with serious physical harm, beaten up or mugged, attacked or stabbed with a knife, shot or shot at with	Academic achievement	Achievement test scores were available from school records. Academic achievement was assessed by scores in reading, math, and writing from the Connecticut Mastery Test (CMT), an achievement test administered to all fourth, sixth, and eighth graders in the state to assess the level of student learning in comparison to state goals, and from one Social and Health Assessment SAHA item in which students responded to “What

						<p>a gun, threatened or harmed because of their ethnicity, or seen a seriously wounded person after an incident of violence.</p> <p>Students were also asked six questions about their involvement in violence as perpetrators during the past year. They were asked how many times they started a fight, hurt someone badly in a fight, carried a gun, been in gang fights, been arrested, and carried a knife. Items were summed to form an index of violence commission</p>		kind of grades do you usually get?’’
33	Jayasinghe, S., Jayawardena, P., & Perera, H.	Sri Lanka	Not stated	Cross-sectional	Witnessing parental violence	A modified AAQ (Abuse Assessment Questionnaire) screen mothers for IPV in terms of ever physically abused, current physical abuse and sexual abuse by the married or cohabitant partner. Children were considered to have witnessed parental violence if their mother reported current physical abuse by an intimate partner.	Behavior and psychological status School performance School attendance	The Strengths and Difficulties Questionnaire (SDQ), an internationally used brief screening instrument, which was validated in Sri Lanka was used to assess behaviour and psychological status of children. Data related to school performance and attendance were obtained from school registers and records.
34	Moore, S. E., Scott, J. G., Thomas, H. J., Sly, P. D., Whitehouse, A. J., Zubrick, S. R., & Norman, R. E.	Australia	1989 onwards	Cohort	Bullying	<p>Western Australian Pregnancy Cohort (Raine) questionnaire</p> <p>At 14 years peer aggression was assessed through a self-reported questionnaire designed for the Raine study. The questionnaire begins with the following statement, “Bullying is when someone is picked on by another person, or a group of people say nasty things to him or her. It is also when someone is hit, kicked, threatened, sent</p>	Completion of secondary school Academic performance	Children who were enrolled in secondary school at 17 years were asked a single question about how they would describe their school academic performance during the last 6 months. The primary caregiver was also asked the same question about their child's academic performance. The options given were poor, below average, average, very good or excellent. These responses were then condensed into three groups: below average (poor and below

						nasty notes or when no one talks to them.” Victims of peer aggression were those participants who stated ‘yes’ to having experienced this behaviour at school in the last three months. Perpetrators of peer aggression were those participants who stated ‘yes’ to having perpetrated this behaviour at school. Victim-perpetrators of peer aggression were those participants who stated ‘yes’ to both behaviours. Participants who did not answer ‘yes’ to any of these behaviours were categorised as uninvolved in any form of peer aggression.		average), average and above average (good and excellent). Similarly, at 20 years, the participants were asked if they had completed secondary school, followed by if they were currently enrolled in tertiary education.
35	Rouse, H. L., & Fantuzzo, J. W.	United States	2002–2003	Cross-sectional	Any form of child maltreatment	Data provided by DHS. At least one substantiated, founded or indicated allegation of child maltreatment (physical abuse that results in severe pain or dysfunction, medical neglect, sexual abuse, lack of supervision resulting in specific physical conditions or impairments, repeated injuries that have no explanation, or psychological abuse).	Poor reading achievement Poor mathematics achievement Grade retention Poor learning behaviors Poor social skills Absenteeism Suspension history	Children’s standardized reading and mathematics achievement was assessed by the Complete Battery Plus version of the <i>TerraNova, Second Edition</i> . The TerraNova is a group-administered achievement test considered among the most reliable and valid of all standardized achievement tests, also known as the <i>California Achievement Tests, Sixth Edition</i> . The nationally standardized scores for Reading and Mathematics composites were used to create two groups of children. “At risk” students included those who scored at or below the 25th percentile, representing one standard deviation below the national mean. This cut-off was selected because it is used by the local school district to allocate intervention resources prior to third grade accountability testing.

36	Rouse, H. L., Fantuzzo, J. W., & LeBoeuf, W.	United States	2005– 2006	Cross- sectional	Any form of child maltreatment	Data provided by DHS. At least one substantiated, founded or indicated allegation of child maltreatment (physical abuse that results in severe pain or dysfunction, medical neglect, sexual abuse, lack of supervision resulting in specific physical conditions or impairments, repeated injuries that have no explanation, or psychological abuse).	Poor reading achievement Poor mathematics achievement Absenteeism Poor class conduct	The Pennsylvania System of School Assessment (PSSA) Third Grade assessment for third grade consisted of Reading and Mathematics subtests. For the current study, children who did not meet the state-designated proficiency level for each subtest were considered at risk. School District administrative records included daily attendance for every child. Daily attendance was used to calculate the number of unexcused absences for each child across the third-grade school year. Truancy in third grade was defined as any child evidencing 25 or more unexcused absences (out of 180), the definition used by the local district to classify children as truant. School district administrative records included whether each child had experienced an in- or out-of-school suspension during third grade. Children were classified as suspended if they had one or more suspensions in third grade.
37	Siziya, S., Muula, A. S., & Rudatsikira, E.	Swaziland	2003	Cross- sectional	Bullying	Data from the 2003 Swaziland Global School-Based Health Survey (GSHS), which asked, “During the past 30 days, on how many days were you bullied?”	Truancy	Truancy was defined as missing classes without permission within the last 30 days preceding the survey. Students were asked: "During the past 30 days, on how many days did you miss classes or school without permission?"
38	Arseneault, L., Walsh, E., Trzesniewski, K.,	England and Wales	1994-95 birth cohort onwards.	Case-control: part of the Environmental Risk (E-Risk)	Bullying	When children were 7 years old, their mothers were asked whether either twin had been bullied by another child (never,	Happiness at school Academic performance Reading test scores	The teacher questionnaire was supplemented with additional questions about the child’s happiness at school (eg, “How

	Newcombe, R., Caspi, A., & Moffitt, T. E.			Longitudinal Twin Study		yes, or frequent) between the ages of 5 and 7. Mothers were also asked whether their children had been bullying others.		happy is he/she?”). Teachers rated children’s happiness in relation to their peers using a 7-point scale, ranging from “much less” (1) to “much more compared with other children in the classroom” (7). Questions about children’s academic performance were also included in the teacher questionnaire when children were 7 years of age. Teachers were asked whether children’s current mathematical and English performances were: (1) far below average, (2) somewhat below average, (3) average, (4) somewhat above average, or (5) far above average, compared with pupils of the same age. Scores were averaged across topics to give a global scale of school performance. Also at 7 years of age, children’s reading abilities were individually tested using the Test of Word Reading Efficiency which provides a quick assessment of sight word efficiency.
39	Baker-Henningham, H., Meeks-Gardner, J., Chang, S., & Walker, S.	Jamaica	Not stated	Cross-sectional	Peer aggression Physical violence Community violence	<p>A questionnaire was developed for the study from a variety of sources which asked about children’s self-reported experiences of violence. Fourteen items measured exposure to aggression among peers at school, including questions on direct involvement in aggressive behaviors as well as witnessing aggressive behaviors.</p> <p>Physical punishment was measured by asking the children 6 questions about whether they had been physically punished</p>	<p>Reading test scores Spelling test scores Mathematics test scores</p>	The Wide Range Achievement Test (WRAT) was used to assess school achievement. The WRAT comprises tests of reading, spelling, and mathematics.

					<p>by a teacher at school since entering grade 5 (being with a hand; hit with a belt or stick; being told to stand in the sun; stand in an uncomfortable position; kneel down in class; or teacher threw something at them).</p> <p>Exposure to community violence was measured by 8 items which asked whether they witnessed certain violent acts, if someone close to them had been stabbed, shot or raped, and if they feared that someone in their community may hurt them or their family.</p>		
40	Banyard, V. L., & Cross, C.	United States	2000-2001	Cross-sectional	<p>Physical and/or sexual violence victimization by a partner</p> <p>The physical violence victimization question was taken from the Youth Risk Behavior Survey which asked, How many times (or much) have you been hit, pushed, or beaten by a girlfriend or boyfriend?</p> <p>Sexual violence victimisation was measured through researcher-developed question about sexual coercion by a peer: "Have you ever been made by someone to do something sexual that you didn't want to do?"</p>	<p>School attachment</p> <p>Feeling they were likely to drop out before finishing high school</p> <p>Grades</p>	<p>School attachment was assessed with four items that examined perceptions of school environment. The items were: "I enjoy going to school," "The rules in my school are enforced fairly," "I will probably drop out before I complete high school," and "I believe I am getting a good, high quality education at my school." Responses on a 4-point scale from <i>strongly agree</i> to <i>strongly disagree</i> were reverse scored so that higher scores indicated more positive views of school. Final scores were calculated as the mean across responses to the four questions. In addition, specific attention was also paid to one individual item from the school attachment scale, whether the participant felt that they were likely to drop out of high school. Participants were asked to report the average grades they usually</p>

								get on a scale from 0, which indicated <i>mostly</i> As to 7, which indicated <i>mostly below</i> D.
41	Boden, J. M., Horwood, L. J., & Fergusson, D. M.	New Zealand	1977-2002	Cohort	Sexual violence Physical violence	<p>At ages 18 and 21, participants were asked about their exposure to sexual violence and physical violence prior to the age of 16.</p> <p>Child sexual abuse was measured by asking if anyone had ever attempted to involve them in any of a series of 15 unwanted sexual activities. Non-contact sexual abuse included indecent exposure, public masturbation or unwanted sexual propositions. Contact sexual abuse was divided into 2 categories: 1) contact sexual abuse involving attempted or completed sexual penetration; and 2) attempted or completed sexual penetration including vaginal, oral and anal intercourse</p> <p>Child physical abuse was measured by asking participants to report on the extent to which their parents used physical punishment during their childhood. Participants who reported that at least one parent regularly used physical punishment, or that at least one parent used frequent or severe punishment or treated the participant in a harsh/abusive manner were considered to have experienced childhood physical abuse.</p>	<p>No secondary school qualifications</p> <p>Gained university degree</p> <p>Gained Higher School Certificate</p> <p>Attended university</p>	The outcome measures in this study are based on assessments of cohort members' attainment of New Zealand high school and tertiary educational qualifications as assessed at ages 18, 21, and 25. All measures were assessed via self-report.
42	Burdick-Will, J.	United States	2002-2009	Cross-sectional	Community violence	This study used crime data from incident reports generated by the Chicago Police Department	<p>Reading test scores</p> <p>Mathematics test scores</p>	The achievement outcomes come from Chicago Public Schools (CPS) administrative files that

						(the Criminal Incident and Arrest Database). Community violence was measured by violent crimes that took place at each public high school in Chicago between 2002-2009 academic years.		recorded the PSAE which is a test given to 11th graders in the spring. This third test is required for graduation and a portion of the test contains the ACT college entrance exam. Annual grade point averages also provide an alternative measure of achievement. The grade point average takes into account all grades that a student receives for each class during both semesters, weighted by the level of the class.
43	Caudillo, M. L., & Torche, F.	Mexico	1990-2010	Cohort	Community violence	This study measured violence by using homicide rates that occurred in the school's municipality obtained from the Mexican Bureau of Statistics.	Elementary school grade failure	The outcome grade failure was measured as the proportion of elementary school students (grades 1 through 6) in each school who did not achieve the minimum overall grade necessary for passing to the next grade during each academic year (September through July).
44	Covey, H. C., Menard, S., & Franzese, R. J.	United States	1976-2003	Cohort	Physical Violence	Adapted from Rebellon and Van Gundy (2005), participants were asked one question about how many times they had been beaten up by a parent in the previous year, measured at Waves 1-5 (aged 11-17 and 15-21). Those who reported their parent had beaten them up 1 or more times were considered to have been physically abused.	Educational attainment	Data was taken from the National Youth Survey Family Study. Educational attainment was measured as the highest grade completed. Responses could in principle range from 0 (no schooling completed) to 17 (at least some education beyond college graduation).
45	Espinoza, G., Gonzales, N.A. and Fuligni, A.J.	United States	2009-2010	Cross-sectional	Bullying	Two items measured peer victimization incidents. On all school days, adolescents were asked to report if "someone from school threatened, insulted or made fun of you" and if "someone from school hit, kicked or shoved you" during the day.	Academic problems Role fulfillment as a good student	A single checklist item was used to assess academic problems. Participants reported whether they did poorly on a test, quiz or homework. To assess adolescents' perceived role fulfillment as good students, each evening they responded to a single item asking how much they felt like a good student during the day on a 7-point scale ranging

								from not at all to extremely. Higher values indicate stronger feelings of role fulfilment.
46	Font, S.A. and Maguire-Jack, K.	United States	2012	Cross-sectional	Witnessing parental violence	Participants were asked, "How often did you parents or adults in your home ever slap, hit, kick, punch or beat each other up?" Those who answered "once" or more were categorized as "ever experienced" witnessing domestic violence.	High school dropout Obtained college degree	This study used the Behavioural Risk Factor Surveillance System (BRFSS) data from 2012.
47	Forrest, C. B., Bevans, K. B., Riley, A. W., Crespo, R., & Louis, T. A.	United States	2006-2008	Repeated Measures	Bullying	Bullying perpetration and victimisation were measured with the Healthy Pathways Child-Report Scales. Low aggression was measured by a 4-item scale which asked about avoidance of inflicting verbal or physical harm on peers. Low bully victimization was measured using a 3-item scale which asked about avoidance of being bullied by peers.	Student engagement GPA State achievement test	Student engagement was assessed by feeling invested and interested in learning using a 4-item scale. APA of reading and math quarterly grades was coded on a 4-point scale (4 = A, 3 = B, 2 = C, 1 = D, 0 = F). State achievement test score was given by the average of the language arts and math test scores, which is standardized to a county-grade specific mean of 100 and standard deviation of 20.
48	Gruber, J., & Fineran, S.	United States	Not stated	Cross-sectional	Bullying Sexual violence	Bullying was measured using 10 items developed by Espelage and Holt (2001). These questions asked students how many times they had been pushed, threatened, or excluded from social groups since the beginning of the school year. Sexual harassment was measured using 14 items from the AAUW (American Association of University Women) survey. Students were asked how many times they received repeated requests to go on a date, were the recipient of sexual rumoring, were touched	Academic engagement School withdrawal Academic performance	Academic engagement was assessed using items firstly developed to assess work stress which was modified by the authors to fit a school setting (e.g., "Made excuses to miss school or class," "Thought about leaving school without graduating") as well as (e.g., "Ignored homework assignments," "Spent time daydreaming, doodling in class"). The items were summed and converted to a 1-9 scale. School withdrawal determined students' commitment to staying in school. Five items (e.g., "Thought about leaving school

						in a sexual nature and were the recipient of sexually offensive comments since the beginning of the school year.		without graduating,” “Skipped school”) were summed and converted to a 1-7 scale ($\alpha = .81$). Academic performance (grades) was based on a single survey item that asked, “What is your overall grade average this year?” Seven response categories ranged from <i>mostly A’s</i> to <i>mostly D’s and F’s</i> .
49	Huang, L., & Mossige, S.	Norway	2007	Cross-sectional	Physical violence Sexual violence	<p>Researcher-developed questions were used to measure physical abuse by peers, which included being injured by violence perpetrated by peers whom the participant knew, or being injured by peers who were strangers to the participant.</p> <p>Eleven items were used to measure sexual abuse before and after the age of 13 years. The items included questions about sexual touching, exposure to someone else’s genitalia, having intercourse, oral sex, anal sex or other forms of sex, and attempted or completed rape. For each item, participants were asked about the frequency of each incidence.</p>	Academic achievement	Data used in the study was from the Norwegian national youth survey, ‘Youth survey on violence and abuse (LUVO)’ conducted in 2007. The data contained information on student achievement in mathematics, Norwegian and English, graded from lowest at ‘1’ to highest at ‘6’.
50	Juvonen, J., Wang, Y., & Espinoza, G.	United States	Not stated	Repeated Measures	Bullying	A modified Peer Victimization Scale with six items was used to measure self-perceived victimization by peers at school. Each item described hypothetical students (e.g., “Some kids are picked on by other kids, BUT other kids are not picked on by other kids.”) Participants were then asked whether each option was “really true for me” or “sort of true for me.” Scores were averaged, with higher scores indicating	GPA Academic engagement	School records GPA: Students grades were collected from report cards at the end of each semester. Based on the grades earned in academic classes, the GPA of each student was scored on a 5-point scale ranging from 0 (<i>F</i>) to 4 (<i>A</i>) and averaged to create a GPA composite for each student. Teachers completed six items from the Teacher Report of Engagement Questionnaire to assess students level of academic engagement.

						<p>higher levels of peer victimization.</p> <p>The study also used peer nomination procedures to assess peer victimization. Students were given a classroom roster (or, in seventh and eighth grade, a list of 50 randomly generated classmates) and asked to list the names of up to 4 classmates who fit each of the 3 victimization descriptions depicting physical, verbal and relational victimization.</p>		
51	Kiesel, L. R., Piescher, K. N., & Edleson, J. L.	United States	2005-2009	Cohort	<p>Witnessing parental violence</p> <p>Child maltreatment</p>	<p>The study used administrative data from child protection records to include children who, 1) experienced at least one substantiated case of child maltreatment, 2) children who had experienced a substantiated case of child maltreatment and children who had at least one caregiver who also reported current involvement in a harmful relationship as a victim of domestic violence; and 3) at least one caregiver reported a current harmful relationship as a victim of domestic violence but alleged child maltreatment remained unsubstantiated.</p>	<p>School attendance</p> <p>Reading test scores</p> <p>Mathematics test scores</p>	<p>Yearly attendance rates were calculated for each child in Years 2–4, by summing the average daily attendance for grades, schools, or districts in a given year and dividing it by that child’s average daily membership or enrolment at a school for the year. The attendance ratio could range from .01 (very low, or almost no attendance) to 1.0 (perfect attendance). Minnesota children are mandated to complete standardized math and reading tests (Minnesota Comprehensive Assessments) in grades 3–8, reading tests in grade 10, and math tests in grade 11. Scores above 50 represented proficiencies and met No Child Left Behind federal school policy standards.</p>

52	Lopez, C., & DuBois, D. L.	United States	Not stated	Cross-sectional	Peer victimization Perceived peer rejection	<p>Peer victimization was measured using the 21-item Peer Victimization Questionnaire (PVQ), a multidimensional self-report measure developed by the first author (Lopez, 1997). The PVQ measures three forms of maltreatment by peers: verbal, physical and social exclusion. Participants were also asked about frequency during the past 6 months, severity and the perpetrator-victim relationship, context and chronicity.</p> <p>Perceived peer rejection was assessed using four items from the Classmate scale of the Social Support Scale for Children (Harter, 1985). The questions asked about the youth's perceived approval or lack of approval from classmates. Each item described hypothetical students (e.g., "Some kids are picked on by other kids, BUT other kids are not picked on by other kids.") Participants were then asked whether each option was "really true for me" or "sort of true for me." Responses were scored on a scale from 1 to 4, with higher scores indicating higher levels of peer victimization.</p>	Academic Problems	GPA and number of days absent, obtained from school records, were used as indicators of academic adjustment. GPA was based on a scale ranging from 0 to 4. Third quarter grading period reports were used for both grades and absences as they corresponded most closely to the time frame used in collection of the youth survey data.
53	Ma, L., Phelps, E., Lerner, J. V., & Lerner, R. M.	United States	2002-2003 and 2003-2004.	Cohort: utilized 4-H Study of Positive Youth Development, a national longitudinal	Bullying	Two global questions from the Olweus Bullying Questionnaire (Olweus, 1996) were used to measure adolescent's bullying status. After being read an introductory paragraph to describe the main characteristics of bullying, participants were asked: "How	Academic competence: self-reported grades; and self-perceived academic competence	Data was from the 4-H Study of Positive Youth Development (PYD). Self-reported grades were assessed by the question "What grades do you earn in school?" Possible responses could range from 1 (<i>mostly A's</i>) to 8 (<i>mostly below D</i>) on an eight point Likert-type scale. Responses were

				investigation of adolescents		often have you taken part in bullying another child or other children?" and "How often have you been bullied in the past couple of months?" Response options were "never", "only once or twice", "two or three times a month", "about once a week" and "several times a week".		reverse coded to represent the familiar GPA system, ranging from 0.5 (<i>mostly below D</i>) to 4 (<i>mostly A's</i>). Higher scores represented higher self-reported grades. Self-perceived academic was indexed by the academic competence subscale in the Self-Perception Profile for Children to reflect adolescents' perception of their school performance. Each item score could range from 1 to 4. The subscale score was the mean of the six item scores with three items reverse coded so that higher subscale scores reflected higher self-perceived academic competence.
54	Morrow, M. T., Hubbard, J. A., & Swift, L. E.	United States	Not stated	Cross-sectional	Physical victimization Verbal victimization Social manipulation Property attacks Social rebuff	The researchers used newly developed daily assessment tool, largely drawn from Mynard and Joseph's (2000) self-report scale, as well as Sandstrom and Cillessen's (2003) checklist. Four-item subscales assessed 5 types of peer victimization (physical, verbal, social manipulation, property attacks and social rebuff). For each item, children were asked to circle the number of times they experienced an event that day at school (on a scale from 0 to 4+).	Academic achievement	Participants completed the Measures of Academic Progress (MAP), which is a state-aligned, computerised, adaptive, RIT (Rasch unit)-scaled assessment program. MAP assessments are developed from a large pool of items that have been calibrated for their difficulty on the RIT scale. Participants completed tests of math and reading achievement. Achievement scores were calculated for each child by averaging their standardized math and reading scores.
55	Peek-Asa, C., Maxwell, L., Stromquist, A., Whitten, P., Limbos, M. A., & Merchant, J.	United States	1994 onwards	Cohort: Prospective Longitudinal	Witnessing parental violence	Parents or adult caregivers were asked questions about their experience of intimate partner violence in the past 12 months at the baseline clinic interview. Severe physical IPV reported by either partner was measured using the Conflict Tactics Scale,	Core total test scores Language test scores Maths test scores Reading test scores	Scores came from the Iowa Tests of Basic Skills (for elementary students) and the Iowa Tests of Educational Development (for high school students). These tests are the most commonly used standardised testing instruments in the United States. Tests were

						which includes items on kicking, biting, or hitting with a fist; hit or tried to hit with something; beat up; threatened with a knife or gun; or used a knife or gun.		routinely administered in the children's classroom by the school district. Standardised test scores were collected for 5 years after the cohort interview. Percentile performance, rather than raw test scores, was used because percentiles provide a standardised range and deviation. Percentile scores were normalised to overall test performance in the state of Iowa.
56	Pieterse, D.	South Africa	2002	Cohort	Childhood maltreatment Hit hard by parent Pushed by parent Afraid of being hurt Put down by adults	Measures on childhood maltreatment are based on standard questions used to measure adverse childhood experiences through self-reports. They asked participants about violence perpetrated inside the home by their parents during childhood including being hit hard by a parent, pushed by a parent, afraid of being hurt and put down by adults. These four individual measures are reported, as well as one aggregate 'childhood maltreatment' score.	Numeracy test Scores Dropout	Using Data from the Cape Area Panel Study (CAPS) two educational outcome were measured. Scores from numeracy tests which were administered to all participants and dropout. The numeracy test scores were standardised to zero mean and unit variance. Each participant completed the same self-administered numeracy test; the test could be taken in either English or Afrikaans.
57	Popp, A. M., Peguero, A. A., Day, K. R., & Kahle, L. L.	United States	2001-2002	Cross-sectional	Direct and Indirect bullying	Direct bullying victimization was measured by the following four items: 1) someone threatened to hurt me at school, 2) someone hit me, 3) someone used strong-arm or forceful methods to get money or things from me, or 4) someone bullied me or picked on me. Indirect bullying was measured by two	Academic self-efficacy Educational achievement	Data for this research is drawn from the Educational Longitudinal Study of 2002 (ELS). To measure academic self-efficacy, students were asked to describe their understanding and mastery of educational material during the first semester or term of the 2001–2002 school year. This measure was constructed

						<p>items: 1) in class, I often feel “put down” by my teachers, and 2) in class, I often feel “put down” by other students. Responses were dichotomized.</p>		<p>from student reports in which they describe themselves as being confident on (a) doing an excellent job on math tests, (b) understanding the most difficult material presented in math texts, (c) understanding the most complex material presented by my math teacher, (d) mastering the skills being taught in math class, (e) doing an excellent job on math assignments, (f) doing an excellent job on English tests, (g) understanding the most difficult material presented in English texts, (h) understanding the most complex material presented by my English teacher, (i) mastering the skills being taught in English class, and (j) doing an excellent job on English assignments. Educational achievement was measured by using a standardised measure pre-constructed by the Research Triangle Institute (RTI) and National Centre for Education Statistics (NCES). ELS includes a reading and math composite score based on standardised tests developed by the Educational Testing Service (ETS) in math and reading. The composite score is the average of the math and reading standardized scores, re-standardised to a national mean of 50.0 and standard deviation of 10.</p>
58	Risser, S. D.	United States	2000-2004.	Cross-sectional	Peer victimization	<p>The subscale for teacher ratings of peer victimization was adapted from the self-report Peer Victimization Scale (Kochenderfer & Ladd, 1996). Teachers rated students across seven items describing peer victimization as “0 – Not</p>	<p>School performance Performance IQ Verbal IQ</p>	<p>Current school performance was reported by teachers on a Mock Report Card. Teachers rated students’ performance across six areas (reading, oral language, written language, math, social studies, and science) using a 5-point scale (“1 = below grade</p>

						True,” “1 – Sometimes True,” or “2 – Often True.” Sample items included “Is called names by peers” and “Is pushed around by other children.”		level,” “2 = needs improvement,” “3 = satisfactory,” “4 = very good,” and “5 = excellent”). For the current study, a school performance subscale was created using the mean of teachers’ ratings across each of these areas. General cognitive ability was assessed through the use of the Wechsler Abbreviated Scale of Intelligence (WASI), an abbreviated test of intellectual functioning for a broad age range. The WASI was administered to participant children during a laboratory visit scheduled in their fourth grade year. Verbal IQ score was computed from the Vocabulary and Similarities subtest, and a Performance IQ score was computed from the Block Design and Matrix Reasoning.
59	Rueger, S. Y., Malecki, C. K., & Demaray, M. K.	United States	Not stated	Longitudinal	Peer victimization	A survey was developed by the authors that included questions on students' reports of being targets of peer victimization. This survey is a minor revision of a previous measure that the authors have used and published in prior research (Demaray & Malecki, 2003), which was based on items from the Bully Survey (Swearer, 2001) and The National School Crime and Safety Survey — Revised Student Form 1 (Kingery, 2001). The revised survey included additional items in order to assess verbal aggression, physical aggression, relational aggression and electronic harassment. Students were given a list of these 12 behaviors and asked how often	GPA Attendance	Data was obtained from official school records. GPA's were calculated by averaging the grades in the five main subject areas of math, English, social studies, science, and reading for Quarter 1 and Quarter 4. Grades were based on a 4-point system, with A=4.0, A-=3.7, B+=3.3, B=3.0, B-=2.7, C+=2.3, C=2.0, C-=1.7, D+=1.3, D=1.0, D-=0.3, and F=0.0. Attendance data consisted of the number of days absent in Quarter 1 (Time 1) and the number of days absent in Quarter 4 (Time 2).

						they had been targets of the behavior on a 5-point Likert scale (1= Never; 2=About once a month; 3=2 or 3 times per month; 4= About once a week; 5= Two or more times a week). Scores of the 12 frequency ratings were summed into a Total Victim score.		
60	Robst, J.	United States	1992	Cross-sectional	Childhood Sexual Abuse	Measured by asking the question, "Before you reached puberty, did anyone touch you sexually?"	Completed high school Attended college Achieved bachelor's degree or above	The data are derived from the 1992 National Health and Social Life Survey (NHSLS). Reported schooling was a categorical variable denoting whether the individual completed: eight years of schooling or less, some high school, high school or equivalent, vocational/ trade/business school, some college or two-year degree, a bachelor's degree, a master's degree, or an advanced degree.
61	Strøm, I. F., Thoresen, S., Wentzel-Larsen, T., & Dyb, G.	Norway	1999-2001	Cross-sectional	Sexual abuse Violence from youths Violence from adults Bullying	<p>Sexual abuse was measured by one 'yes or no' question which asked whether the participants had experienced sexual abuse in the past 12 months.</p> <p>Participants were asked whether they had been exposed to any violence in the past 12 months with the response options being: a) never; b) yes by youths; c) yes by adults; d) yes by both youths and adults.</p> <p>One question on bullying also asked respondents whether they had experienced problems with bullying in school, or on the way to or from school in the past 12 months with the following response options: a) never, 2) sometimes, 3) about once a week, 4) many times a week.</p>	Academic Achievement	Participants were asked to report their most recent recorded grades in four subjects: mathematics, written Norwegian, English and social sciences. The four grades were combined into one mean grade.

62	Tanaka, M., Jamieson, E., Georgiades, K., Duku, E. K., Boyle, M. H., & MacMillan, H. L.	Canada	1983 and 2000-2001	Cross-sectional	Severe child physical abuse (CPA) Non-severe CPA Childhood sexual abuse	Retrospective self-reports of lifetime exposure to childhood physical abuse and childhood sexual abuse were measured using the short form of the Childhood Experiences of Violence Questionnaire (CEVQ). Child physical abuse was assessed by three items: How many times before age 16 did an adult . . . (1) slap you on the face, head or ears or hit or spank you with something like a belt, wooden spoon or something hard? (2) push, grab, shove or throw something at you to hurt you? (3) kick, bite, punch, choke, burn you, or physically attack you in some way? Severe physical abuse was present if item 1 or 2 was reported to have occurred more than 10 times or if item 3 had occurred at least 1 to 3 times. All other experiences of physical abuse were categorised as non-severe. Sexual abuse was measured by asking, "Before age 16 when you were growing up, did anyone ever do any of the following things when you didn't want them to: touch the private parts of your body or make you touch their private parts, threaten or try to have sex with you or sexually force themselves on you?"	Educational attainment	The data was derived from the Ontario Child Health Study (OCHS). Educational attainment was assessed by the number of years of education.
63	Thijs, J., & Verkuyten, M.	Netherlands	Not stated	Cross-sectional	Peer victimization	Perceptions of peer victimization were assessed with four items, which referred to the frequencies of being	Academic self-efficacy Relative academic achievement	<i>Academic self-efficacy</i> . Perceived academic self-efficacy was assessed with four items adapted from the scholastic competence

						<p>teased or called names and the frequencies of being excluded in the school and neighborhood. These items were developed by the authors from Dutch research on early adolescents' own understanding of peer victimization (Verkuyten, Kinket, & van der Wielen, 1997). The items were scored on a scale ranging from 1 (no, never) to 5 (yes, very often).</p>	<p>Absolute academic achievement</p>	<p>scale of the Self-Perception Profile for Adolescents (SPPA). The SPPA is an established self-concept measure containing eight subscales for domain-specific self-evaluations.</p> <p><i>Relative achievement.</i> Elementary school children in the Netherlands receive their grades from their teachers. As in other countries, these grades are based (in part) on students' achievements relative to those of their classmates. Information was collected on perceived relative academic position within the classroom by means of three Willig Scales, which is a self-anchoring, 11-step rating scale that has been used in previous studies. The top of the scale (10) marks the best performing student in one's class and the lowest step (0) marks the worst performing student. Children were asked to use this scale to rate their general performance, their achievement in language learning, and their achievement in mathematics.</p> <p><i>Absolute achievement.</i> To obtain a more absolute measure of academic achievement, students self-reports of their official secondary school advice were used. In the Netherlands, students receive their secondary education advice from their teachers in the final grade (Grade 6) of primary school. Teachers take several considerations into account when giving this advice. However, the advice is predominantly based on students' scores on a standard national school achievement test (CITO test) and is highly</p>
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								correlated with these scores. Thus, the educational advice is a valid measure of students' academic achievement.
64	Wang, W., Vaillancourt, T., Brittain, H.L., McDougall, P., Krygsman, A., Smith, D., Cunningham, C.E., Haltigan, J.D. and Hymel, S.	Canada	2008	Cross-sectional	Peer victimization	Students' peer victimization experiences were measured using a short version of the Vaillancourt and Hymel Bullying Involvement Questionnaire (Vaillancourt et al., 2008; Vaillancourt, Trinh, et al., 2010). Participants were given a definition of bullying (describing the intention to hurt, repeated nature, unequal power dynamics) and were then asked to respond to 5 questions about their experiences with bullying during the school year. One general question about bullying was asked followed by four questions about different forms of peer victimization: physical, verbal, social and cyber victimization. Response options were: 0 = not at all; 1 = only a few times this year; 2 = every month; 3 = every week; 4 = many times a week. The average of all 5 items provided a composite victimization score.	Academic achievement: GPA	Academic achievement was assessed through teacher-assigned grades at the end of the Grade 5 year (June 2008). Specifically, teacher-assessed grades for English, French, math, science, and social studies for each term were obtained directly from students' official Ontario School Records through the participating school board. A GPA composite was used which had excellent reliability.
65	Wormington, S. V., Anderson, K. G., Schneider, A., Tomlinson, K. L., & Brown, S. A.	United States	2009	Cross-sectional	Peer victimization	Participants were asked the frequency with which they had been the targets of peer victimization at school in the last 12 months (on a 4-point scale, 1 = 0 times and 4 = 4 or more times). Eight items assessed victimization including questions on physical and relational victimization. Another eight items measured bullying, including being bullied due to	Academic performance Truancy	Participants were recruited as part of the California Healthy Kids Survey (CHKS). For academic performance, students self-reported their grade point average on an 8-point scale (1 = <i>mostly A's</i> , 8 = <i>mostly F's</i>), with lower values representing better academic performance. Self-reported GPA has been found to highly correlate with actual grades and has been used in a number of studies.

						<p>race/ethnicity/national origin, religion, gender, sexuality, disability or any other reason. Bullying was defined as being “repeatedly shoved, hit, threatened, called mean names, being teased in a way you didn’t like, or had other unpleasant things done to you. It is not bullying when two students of about the same strength quarrel or fight.”</p>		<p>For truancy, students indicated the number of times they had missed school in the past 12 months on a 6-point scale (1 = 0 times, 6 = more than once a week).</p>
66	Wright, M. F.	United States	Not stated	Longitudinal: 1.5 years	<p>Face to face peer victimization Cyber victimization</p>	<p>Participants were asked 12 questions about how often they experienced face-to-face victimization on a scale of 1 (not at all) to 5 (all of the time). For example, “Someone hit, kicked, or punched me / I hit, kicked or punched someone.”</p> <p>Nine items also measured cyber victimization. The questions were similar to those about face-to-face victimization except that the behaviors occurring online or through text messages and used the same frequency scale. An example item is: “Someone insulted me online or through text messages / I insulted someone online or through text messages.”</p>	<p>Academic performance Absenteeism</p>	<p>Data was collected from school records. Report card grades were used to indicate student’s GPA in reading, math, science, and social studies. GPA from each subject was averaged to form a final score for GPA. Higher scores indicated better overall academic performance. GPA was assessed at the end of the 7th and 8th grade. To calculate absenteeism, the number of days absent was divided by the total number of days in the school year. Absenteeism was calculated from school records at the end of the year in the 7th grade and the 8th grade.</p>
67	<p>Oganda Portlea, M. J., & Pells, K.</p> <p>Pells, K., Ogando Portlea, M.</p>	Ethiopia, India, Peru, Viet Nam	2002-2016	Longitudinal	<p>Corporal punishment Bullying</p>	<p>Physical (or corporal) punishment was defined as “spanking, beating, punching, twisting child’s ears or any other hitting, by using hand or an implement.” Children were asked two questions about corporal punishment: “Think</p>	<p>Cognitive achievement outcomes Psychosocial competencies</p>	<p>Education and cognitive achievement were determined from raw scores on the Mathematics Achievement Test, determined by the number of correct answers and raw scores on the Peabody Picture Vocabulary</p>

	J., & Espinoza Revollo, P.					<p>about the past week at school, or the last week you were in school. In that week, did you see a teacher use physical punishment on other students? In that week, did the teacher use physical punishment?”</p> <p>Response options were: a) never, b) once or twice and c) most/all of the time. A binary variable was used in this analysis: corporal punishment was present if participants answered once or twice, or most/all of the time.</p> <p>A nine-item scale – taken from the standardized Social and Health Assessment Peer Victimization Scale (Ruchkin, Schwab-Stone and Vermerien, 2004) - was used to measure 4 types of peer bullying in the past year in any setting, not just school: physical bullying, verbal bullying, indirect bullying and attacks on property. Bullying was defined as experiencing any of these sub-types of bullying more than once.</p>		<p>Test, which was non-standardised.</p> <p>Psychosocial competencies were measured by asking respondents to indicate their degree of agreement or disagreement with a set of statements using a 5-point Likert response scale (from strongly disagree to strongly agree).</p>
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Table 3.1: Fixed Effect and Random Effect Adjusted Odds Ratios of the Association between Violence in Childhood and School Dropout and School Graduation

School dropout											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse	2	4	1.165	0.904	1.426	1.165	0.904	1.426	0.02	0.888	0.00%
Physical Abuse	2	7	1.611	1.333	1.888	1.611	1.333	1.888	0	0.972	0.00%
Emotional Abuse	1	1	2.2	1.6	3	2.2	1.6	3	0	.	.
Neglect	1	2	1.654	1.249	2.06	1.654	1.249	2.06	0	.	.
Witnessing parental violence											
Bullying	1	1	1.51	1.08	2.13	1.51	1.08	2.13	0	.	.
other	1	3	2.277	1.644	2.91	2.277	1.644	2.91	0	.	.
overall	8	18	1.521	1.366	1.675	1.593	1.334	1.852	17.05	0.017	59.00%
School graduation											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse											
Physical Abuse											
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying	1	3	0.69	0.503	0.878	0.678	0.341	1.015	0	.	.
other	2	3	0.385	0.212	0.558	0.385	0.212	0.558	3.21	0.073	68.80%
overall	3	6	0.526	0.399	0.653	0.568	0.288	0.848	8.73	0.013	77.10%

Note: n of studies means number of studies, n of outcomes means number of outcomes (one study may reports several outcomes/ see strategy adopted in the methods section)

Table 3.2: Fixed Effect and Random Effect Adjusted Odds Ratios of the Association between Violence in Childhood and School Absence by Gender

School Absence											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse											
Physical Abuse											
Emotional Abuse											
Neglect											
Witnessing parental violence	1	1	4.218	2.775	6.549	4.218	2.775	6.549	0	.	.
Bullying	4	12	1.777	1.459	2.095	1.783	1.454	2.111	3.03	0.387	1.00%
other	1	1	1.8	1.5	2.3	1.8	1.5	2.3	0	.	.
overall	6	14	1.828	1.581	2.074	1.996	1.552	2.441	9.31	0.097	46.30%
School Absence Male											
Subgroup	n of studies	n of outcomes	Fixed Effect	Random Effect					dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse	1	3	2.263	0.913	3.614	2.263	0.913	3.614	0	.	.
Physical Abuse	1	1	2.512	0.876	7.209	2.512	0.876	7.209	0	.	.
Emotional Abuse	1	1	3.53	1.549	8.044	3.53	1.549	8.044	0	.	.
Neglect											
Witnessing parental violence	1	2	2.005	0.29	3.72	2.005	0.29	3.72	0	.	.
Bullying	2	7	2.575	1.46	3.69	2.912	0.904	4.92	2.38	0.123	58.00%
other											
overall	6	14	2.426	1.698	3.154	2.426	1.698	3.154	3.18	0.672	0.00%
School Absence Female											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse	1	3	3.147	0.401	5.893	3.147	0.401	5.893	0	.	.
Physical Abuse	1	1	0.926	0.246	3.478	0.926	0.246	3.478	0	.	.
Emotional Abuse	1	1	0.335	0.05	2.225	0.335	0.05	2.225	0	.	.

Neglect											
Witnessing parental violence	1	2	0.639	-0.43	1.708	0.639	-0.43	1.708	0	.	.
Bullying	2	7	1.824	0.94	2.707	2.301	0.033	4.57	4.89	0.027	79.60%
other											
overall	6	14	1.123	0.59	1.656	1.349	0.458	2.241	12.26	0.031	59.20%

Table 3.3: Fixed Effect and Random Effect Adjusted Odds Ratios of the Association between Violence in Childhood and Academic Achievement

Low academic achievement/performance											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse	2	3	1.254	1.063	1.446	1.254	1.063	1.446	0.02	0.899	0.00%
Physical Abuse	2	3	1.232	1.066	1.398	1.232	1.066	1.398	0.01	0.909	0.00%
Emotional Abuse											
Neglect	1	1	1.63	0.73	3.64	1.63	0.73	3.64	0	.	.
Witnessing parental violence	3	4	1.2	0.884	1.516	1.269	0.816	1.722	3.15	0.207	36.60%
Bullying	6	12	1.123	0.971	1.275	1.186	0.816	1.556	18.05	0.003	72.30%
other	2	3	1.232	1.118	1.345	1.303	1.024	1.582	2.53	0.112	60.40%
overall	16	26	1.21	1.138	1.282	1.222	1.105	1.34	25.76	0.041	41.80%
High academic achievement/performance											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse											
Physical Abuse											
Emotional Abuse	1	1	0.6	0.5	0.7	0.6	0.5	0.7	0	.	.
Neglect											
Witnessing parental violence											
Bullying	3	6	0.764	0.699	0.829	0.722	0.586	0.858	6.81	0.033	70.60%
other											
overall	4	7	0.715	0.661	0.77	0.684	0.557	0.811	14.05	0.003	78.60%

Table 3.4: Fixed Effect and Random Effect Adjusted Odds Ratios of the Association between Violence in Childhood and Other Educational Outcomes

Other (Grade Retention/ Remedial class etc.)											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse											
Physical Abuse	1	1	2.202	1.363	3.356	2.202	1.363	3.356	0	.	.
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying											
other	2	3	1.532	1.355	1.71	1.532	1.355	1.71	0.48	0.49	0.00%
overall	3	4	1.553	1.378	1.728	1.563	1.367	1.759	2.16	0.34	7.30%
Other Educational Outcomes - Male											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse	1	3	1.25	0.979	1.522	1.25	0.979	1.522	0	.	.
Physical Abuse	1	1	1.068	0.704	1.62	1.068	0.704	1.62	0	.	.
Emotional Abuse	1	1	1.15	0.751	1.763	1.15	0.751	1.763	0	.	.
Neglect											
Witnessing parental violence	1	2	1.345	0.914	1.777	1.345	0.914	1.777	0	.	.
Bullying	1	4	1.2	0.965	1.435	1.2	0.965	1.435	0	.	.
other											
overall	5	11	1.214	1.066	1.362	1.214	1.066	1.362	0.89	0.926	0.00%
Other Educational Outcomes - Female											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			AOR	95% LL	95% UL	AOR	95% LL	95% UL			
Sexual Abuse	1	3	1.141	0.845	1.438	1.141	0.845	1.438	0	.	.
Physical Abuse	1	1	1.978	1.199	3.263	1.978	1.199	3.263	0	.	.
Emotional Abuse	1	1	2.526	1.698	3.758	2.526	1.698	3.758	0	.	.
Neglect											
Witnessing parental violence	1	2	1.722	1.036	2.408	1.722	1.036	2.408	0	.	.
Bullying	1	4	1.483	1.16	1.806	1.483	1.16	1.806	0	.	.

other											
overall	5	11	1.406	1.205	1.606	1.571	1.191	1.952	9.82	0.043	59.30%

Table 4.1 Fixed Effect and Random Effect ME of the association between Violence in Childhood and School Dropout and School Graduation

School Dropout											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse	2	2	0.005	-0.007	0.017	0.152	-0.199	0.504	5.2	0.023	80.80%
Physical Abuse	2	4	0.083	0.014	0.152	0.083	0.014	0.152	0.54	0.464	0.00%
Emotional Abuse	1	1	0.08	0.041	0.119	0.08	0.041	0.119	0	.	.
Neglect											
Witnessing parental violence											
Bullying	5	11	0.045	0.026	0.064	0.045	0.026	0.064	0.28	0.991	0.00%
other	2	3	0.108	0.072	0.145	0.087	0	0.173	2.67	0.102	62.60%
overall	12	21	0.027	0.018	0.037	0.058	0.028	0.087	53.4	0	79.40%
Note: n of studies means number of studies, n of outcomes means number of outcomes (one study may reports several outcomes/ see strategy adopted in the methods section.											
School Graduation											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse	3	5	-0.149	-0.278	-0.021	-0.142	-0.31	0.025	3.28	0.194	39.10%
Physical Abuse	3	6	-0.225	-0.353	-0.097	-0.206	-0.403	-0.009	4.03	0.133	50.40%
Emotional Abuse											
Neglect											
Witnessing parental violence	1	1	-0.071	-0.225	0.083	-0.071	-0.225	0.083	0	.	.
Bullying											
other	1	3	-0.056	-0.198	0.086	-0.056	-0.198	0.086	0	.	.
overall	8	15	-0.134	-0.202	-0.065	-0.137	-0.227	-0.047	11.1	0.133	37.20%

Table 4.2 Fixed Effect and Random Effect ME of the association between Violence in Childhood and School Attendance

School Attendance											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse											
Physical Abuse											
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying											
other	1	3	-0.028	-0.034	-0.022	-0.028	-0.034	-0.022	0	.	.
overall	1	3	-0.028	-0.034	-0.022	-0.028	-0.034	-0.022	0	.	.

Table 4.2 Fixed Effect and Random Effect ME of the association between Violence in Childhood and Academic Achievement

Low Academic Achievement/performance											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse	1	1	0.192	0.153	0.231	0.192	0.153	0.231	0	.	.
Physical Abuse											
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying	2	4	0.03	0.018	0.042	0.033	0.013	0.053	1.42	0.234	29.50%
other											
overall	3	5	0.044	0.033	0.055	0.09	-0.005	0.185	61.25	0	96.70%
High academic achievement/performance											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse											
Physical Abuse											
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying	4	11	-0.003	-0.012	0.007	-0.107	-0.179	-0.035	49.32	0	93.90%
other											
overall	4	11	-0.003	-0.012	0.007	-0.107	-0.179	-0.035	49.32	0	93.90%
Test Scores (Standardized)											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse	1	1	-0.29	-0.408	-0.172	-0.29	-0.408	-0.172	0	.	.
Physical Abuse	3	5	-0.13	-0.184	-0.076	-0.251	-0.642	0.14	34.92	0	94.30%

Emotional Abuse	1	1	-0.07	-0.129	-0.011						
Neglect											
Witnessing parental violence	1	1	-0.08	-0.217	0.057	-0.08	-0.217	0.057	0	.	.
Bullying	4	8	-0.027	-0.031	-0.022	-0.051	-0.099	-0.003	22.33	0	86.60%
other	2	5	-0.123	-0.164	-0.081	-0.123	-0.164	-0.081	0.26	0.611	0.00%
overall	12	21	-0.029	-0.033	-0.025	-0.128	-0.175	-0.081	112.75	0	90.20%
Test Scores (Raw)											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse											
Physical Abuse	5	11	-3.047	-3.154	-2.94	-3.082	-3.675	-2.49	5.33	0.255	25.00%
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying	1	3	-2.887	-4.706	-1.068	-2.887	-4.706	-1.068	0	.	.
other	1	3	-2.843	-4.915	-0.771	-2.843	-4.915	-0.771	0	.	.
overall	7	17	-3.046	-3.153	-2.94	-3.046	-3.153	-2.94	5.4	0.494	0.00%

Table 4.3 Fixed Effect and Random Effect ME of the association between Violence in Childhood and Other Educational Outcomes

Other Educational Outcomes (School Engagement, etc)											
Subgroup	n of studies	n of outcomes	Fixed Effect			Random Effect			dQ	P value	I-squared
			ME	95% LL	95% UL	ME	95% LL	95% UL			
Sexual Abuse											
Physical Abuse											
Emotional Abuse											
Neglect											
Witnessing parental violence											
Bullying	2	6	-0.003	-0.005	-0.001	-0.354	-1.071	0.363	24.47	0	95.90%
other											
overall	2	6	-0.003	-0.005	-0.001	-0.354	-1.071	0.363	24.47	0	95.90%

